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JANUARY 1979

VOLUME 30

NUMBER 1

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JANUARY 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Most of the Nation showed above-normal precipitation in January. Many stations in the western Great Lakes area noted record amounts of snowfall. Exceptions to the above-normal precipitation included most of the Pacific Northwest, where only 40 to 60% of normal fell, and across the northern tier of States along the Canadian border west of the Lakes. New England received record precipitation in the eastern portions of the region, rain caused some flooding. Southwestern Texas saw drier than normal weather.

January stood as a quite cold month as many stations broke records for the coldest first month. From the northern Rockies to the central Plains, monthly averages dipped 13 to 16° colder than normal.

During the first week, very cold air plunged into the western United States. While low temperature records fell in the Plains, new record highs were set in the East. At the onset of the cold weather, vegetable harvest was delayed in California, but no damage was noted. As the cold air moved eastward, the southern Texas vegetable and citrus area was not so fortunate. A moderate freeze inflicted considerable damage on the 2d and 3d. Moving rapidly eastward, the cold air nipped parts of Florida, but only slight damage to tender foliage was reported. Rain or snow preceded the eastward moving cold air and became heaviest from eastern Texas to southern New England. Late in the week, heavy rain fell in southern California where the Los Angeles area measured more than 3 inches.

The drier-than-normal Pacific Northwest picked up 1 to 2 inches of precipitation during the second week. The rain (snow at higher elevations) extended southward well into California and southern Plateau. Elsewhere, a storm system formed in Missouri and moved northeastward spreading snow to its north and west and rain to the east. An additional 6 inches of snow fell on the hard-hit Chicago area. Cold weather continued to dominate most of the Nation, but warming

began in the West and southern Florida.

The Pacific storm affecting the Northwest moved southward along the California Coast and then into the Southwest during January's third week. Light to moderate rain or snow accompanied the storm. A minor disturbance added another couple of inches of snow to the southwestern Great Lakes area. A third system wound up in the lower Mississippi Valley and spread heavy rain in the South and freezing rain and then snow from the mid-Atlantic States northward. Colder-than-normal weather, but not as cold as the previous 2 weeks, persisted in the northern States and most of the Southeast. Warmer-than-normal temperatures spread from California into Alabama.

The last full week of January (the 22d-28th) brought a return of the very cold weather to nearly all the United States. Cold air plunged southward to the West and moved eastward. A low pressure system off the coast of Newfoundland, with its counter-clockwise circulation, brought warmer air into the Northeast making that area the only part of the Nation where the temperatures averaged above normal. Nearly all parts of the country received some precipitation, but most occurred in the South and the Northeast. Heavy rain in some New England areas caused local flooding. Thunderstorms rumbled over the South as the cold air encountered the warmer moist air. Nearly an inch of precipitation fell in Arizona, and another six or more inches of snow plagued the western Lakes area.

During the last three days of January, the cold air displaced the warmer air in the Lakes area and most of the Northeast. Only New England remained warmer than normal. Moisture from the Gulf spread northward into Texas and light snow fell from the central Plains to the Lakes.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JANUARY 1979

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	2 Stations	76	1	Ashland 2 SSE	1	3	Reform 2 E	12.96	Fairhope 2 NE	5.04
Alaska	Port Heiden	52	30	Allakaket	-55	30	Little Port Walter	16.97	Lonely	T
Arizona	Tumacacori Natl Mon	76	4	Hawley Lake	-36	30	Sunrise Mountain	11.52	Saint Johns	.72
Arkansas	2 Stations	69	1	2 Stations	-7	14+	Arkansas City	12.39	Yellville	1.50
California	El Centro 2 SSW	75	12	Big Bear Lake	-25	29	Strawberry Valley	15.32	Bishop WSO AP	.45
Colorado	Trinidad FAA AP	63	12	Maybell	-60	1	Independence Pass 5 SW	8.66	Browns Park Refuge	.06
Connecticut	Norwalk Gas Plant	65	2	Wigwam Reservoir	-9	20+	West Hartford	15.47	Bulls Bridge Dam	7.87
Delaware	3 Stations	66	2+	Georgetown 5 SW	4	4	Newark University Farm	8.86	Georgetown 5 SW	6.78
Florida	Fort Lauderdale	88	14	Smith Creek	14	3	High Springs	11.36	Miami WSMO AP	1.28
Georgia	Waycross 4 NE	81	2	Blairsville Exp Station	2	9	Clayton 1 SSW	10.53	Midville Exp Station	2.98
Hawaii	2 Stations	91	9+	Mauna Kea Obs lll.2	19	21+	Kukaiau 222	60.44	Mahana 694	.08
Idaho	Reynolds	51	12	Hamer 4 NW	-48	1	Tensed	5.46	Riggins	.41
Illinois	Mt Carmel	49	1	3 Stations	-29	12+	Centralia	5.37	Jacksonville 2 E	DL.49
Indiana	Madison Sewage Plant	61	1	Lowell	-24	15	Shoals Hiway 50 Bridge	6.01	Fort Wayne WSO AP	1.64
Iowa	2 Stations	40	22	Anamosa 1 WNW	-29	2	Donnellson	4.15	Lake Park	.42
Kansas	Syracuse 2 W	60	21	Ellsworth	-25	2	La Cygne	4.96	Richfield 10 WSW	.29
Kentucky	Pikeville 2	67	2	2 Stations	-9	15	Somerset 2 NE	8.64	Paducah FAA AP	3.25
Louisiana	New Roads 5 ESE	79	1	Plain Dealing	8	3+	Saint Joseph Exp Station	17.50	Hackberry 8 SSW	3.65
Maine	Bar Harbor 3 NW	58	2	Van Buren 2	-40	12	Jonesboro	12.53	Fort Fairfield 5 NE	4.07
Maryland	Millington	68	1	Mc Henry 2 NW	-8	4+	Conowingo Dam	10.41	Savage River Dam	4.45
Massachusetts	Framingham	62	3+	Chester 2	-17	12	Sterling	14.34	Nantucket FAA AP	4.00
Michigan	Adrian 2 NNE	40	1	Stambaugh 1 S	-37	16+	Whitefish Point	D 5.91	St Ignace-Mackinac Br	1.21
Minnesota	2 Stations	29	26+	Wright 4 NW	-45	2	New London	2.82	Duluth Harbor Station	.25
Mississippi	Gulfport Naval Center	76	18	5 Stations	5	10+	Port Gibson 1 NW	16.98	Biloxi City	5.86
Missouri	Alton	53	17	Shelbina	-30	15	Wappapeillo	5.70	Macon	1.41
Montana	Augusta	48	21	Wisdom	-49	7+	Summit	D 3.59	Turner	.03
Nebraska	Benkelman	48	22	Box Butte Exp Station	-35	1	Nebraska City	2.90	Sidney 6 NNW	.08
Nevada	3 Stations	64	13+	Mountain City R S	-30	31+	Mount Rose Bowl	6.76	Dyer 4 SE	.08
New Hampshire	Greenland	61	2	2 Stations	-32	12	Mount Washington	12.62	Grafton	5.05
New Jersey	2 Stations	64	2	High Point Park	-3	19	Morris Plains 1 W	13.24	Shiloh	6.31
New Mexico	3 Stations	71	13+	Tierra Amarilla 4 NNW	-33	2	Tohatchi 1 ESE	8.63	Carlsbad FAA AP	.20
New York	N Y Central Park WSO CI	63	2	Gouverneur 3 NW	-34	19	Green Port Power House	13.35	Massena FAA AP	2.52
North Carolina	4 Stations	74	8+	Grandfather Mountain	-12	3	Rosman	D12.60	William O. Huske L & D	3.33
North Dakota	Hebron	39	22	Belcourt Keya	-40	15+	Forman 5 SSE	D 1.11	2 Stations	T
Ohio	3 Stations	62	1	2 Stations	-22	12+	Portsmouth US Grant Br	6.39	Toledo Express WSO AP	1.24
Oklahoma	Waurika	64	18	Bixby 2 E	-14	31	Durant USDA	3.73	Boise City 2 E	.33
Oregon	Ashland	64	11	Seneca	-40	1	Port Orford 5 E	12.48	Union Exp Station	.47
Pennsylvania	Derry 4 SW	65	1	2 Stations	-24	11	Bucksville	11.54	Union City Filt Plant	2.33
Puerto Rico	Dos Bocas	92	31	Adjuntas Substation	45	31+	Pico Del Este	10.47	3 Stations	.00
Rhode Island	Providence WSO AP	59	2	2 Stations	-1	20+	North Foster 1 E	14.38	Block Island WSO AP	8.83
South Carolina	2 Stations	77	2	Caesars Head	-3	3	Caesars Head	14.57	Charleston WSO AP	3.43
South Dakota	Belle Fourche	52	21	Deerfield 4 NW	-34	1	Castlewood	2.45	Glad Valley 2 W	T
Tennessee	Kingsport	69	1	2 Stations	-4	9+	Rockwood 2	10.00	Dyersburg FAA AP	2.98
Texas	3 Stations	85	19+	2 Stations	-12	2	Marshall	14.32	3 Stations	.00
Utah	2 Stations	57	12+	2 Stations	-43	2+	Silver Lake Brighton	5.50	Eskdale	.25
Vermont	Dorset 1 S	56	2	Enosburg Falls	-32	19	Searsburg Station	11.83	South Hero	4.38
Virginia	Diamond Springs	72	1	Mt Lake Biological Sta	-10	3	Meadows of Dan 5 SW	8.54	Wytheville 1 S	3.45
Virgin Islands	Cruz Bay	89	30+	Alex Hamilton Field FAA	61	27+	Granard	4.88	East End	.89
Washington	Seattle Jackson Park	57	18	Newport	-30	1	Rainier Paradise R S	7.67	Ephraia FAA AP	.26
West Virginia	2 Stations	69	2+	Snowshoe	-16	3	Snowshoe	10.24	Webster Springs 1 E	3.56
Wisconsin	Hillsboro	35	28	Couderay 7 W	-49	2	Milwaukee Mt Mary College	4.12	Rice Lake	.62
Wyoming	Chugwater	48	17	Darwin Ranch	-53	1	Snake River	3.84	2 Stations	.11

## CLIMATOLOGICAL DATA

METRIC UNITS

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind		No. of days		Possible sunshine																							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	Average dew point	Average relative humidity	Total	mm	mm	Greatest in 24 hours	25 mm or more	No. of days	With thunderstorms	Maximum depth on ground	Snow ice pellets	Residual speed	m/s	Residual direction	Speed	m/s	Fastest mile (1.6 kilometers)	Direction	Date	Clear 0-3	Partly cloudy 4-7	Cloudy 8-10	Sky cover tenths (sunrise to sunset)			
ALABAMA																																							
BIRMINGHAM	207	997.3	1014.5	7.7	-1.9	2.9	-4.9	18.3	17*	-10.6	9*	0	23	-3.3	65	144	19	47	13	0	1	0	1.0	32	7	22	8.3	34											
MOBILE	16	996.6	1015.6	8.1	-1.7	0.7	-4.2	19.0	17*	-11.8	9	0	24	-3.9	77	151	24	44	13	2	1	25	1.9	13	5	21	8.3												
WETUMPS	12	997.1	1015.9	8.1	-1.7	0.7	-4.2	19.0	17*	-11.8	9	0	24	-3.9	77	151	24	44	13	2	1	25	1.9	13	5	21	8.3												
MOBILE	12	997.1	1015.9	8.1	-1.7	0.7	-4.2	19.0	17*	-11.8	9	0	24	-3.9	77	151	24	44	13	2	1	25	1.9	13	5	21	8.3												
MOBILE	12	997.1	1015.9	8.1	-1.7	0.7	-4.2	19.0	17*	-11.8	9	0	24	-3.9	77	151	24	44	13	2	1	25	1.9	13	5	21	8.3												
MOBILE	12	997.1	1015.9	8.1	-1.7	0.7	-4.2	19.0	17*	-11.8	9	0	24	-3.9	77	151	24	44	13	2	1	25	1.9	13	5	21	8.3												
ALASKA																																							
ANCHORAGE	34	1006.4	1011.5	-2.0	-8.8	-5.4	5.8	4.4	16	-17.2	19	9	31	-10.0	68	4	-15	3	7	0	91	432	1.6	1	10.4	34	18	7.6	21										
BARRETT	34	1015.2	1015.7	-2.0	-8.8	-5.4	5.8	4.4	16	-17.2	19	9	31	-10.0	68	4	-15	3	7	0	91	432	1.6	1	10.4	34	18	7.6	21										
BARTON ISLAND	17	997.3	1003.1	-2.8	-9.1	-17.7	9.0	6.1	18	-38.9	31	0	31	-16.4	84	165	-59	48	14	0	465	127	2.7	8	12.5	20	2												
BETHEL	13	997.3	1003.1	-2.8	-9.1	-17.7	9.0	6.1	18	-38.9	31	0	31	-16.4	84	165	-59	48	14	0	465	127	2.7	8	12.5	20	2												
BETHEL	13	997.3	1003.1	-2.8	-9.1	-17.7	9.0	6.1	18	-38.9	31	0	31	-16.4	84	165	-59	48	14	0	465	127	2.7	8	12.5	20	2												
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## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1979

State and Station	Elevation ground	Pressure			Temperature				Precipitation				Wind			No. of days (sunrise to sunset)	Sky cover tenths																
		Station Q	Sea level	mb	Average maximum	Average minimum	Average from normal	Highest	Lowest	Date	Max 32.2° or above	Min 0° or lower	Average dew point	Total	Departure from normal	Greatest in 24 hours	25 mm or more	With thunderstorms	Snow ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed mi/s	Direction (10 kilometers)	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Possible sunshine					
					C	C	C	C	C				C	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
COLORADO																																	
ALAMOSA	2297			1019.8	-6.3	-24.6	-14.4	-0.2	6.7	18	-39.4	31	0	31	-15.6	58	19	13	5	8	0	351	178	0.7	29	36	12	11	7	13	5.4		
CULCANDA SPRINGS	1873			1019.8	-2.7	-14.1	-8.4	-0.5	7.8	16	-25.0	1	0	31	-15.6	58	13	6	9	8	0	251	127	1.8	2	15.0	36	12	11	10	5.4		
DENVER	1610			1017.9	-0.8	-14.8	-7.8	-0.6	12.2	21	-23.9	1	0	31	-14.4	62	9	9	2	8	0	231	102	0.4	3	12.1	46	2	9	8	15	6.2	
GRAND JUNCTION	1474			1023.2	-3.8	-13.4	-8.6	-3.6	6.4	18	-23.3	31	0	31	-11.7	77	35	18	7	15	0	475	279	0.3	3	10.7	46	2	9	3	22	7.8	
PUEBLO	1428			1023.2	-1.7	-15.0	-8.8	-7.8	10.6	21	-28.9	2	0	31	-11.7	77	15	7	8	8	0	279	177	0.3	3	22.4	46	2	9	13	11	5.9	
CONNECTICUT																																	
BRIDGEPORT	2			1013.0	2.6	-6.2	-0.8	0.2	11.1	2	-15.6	19	0	20	-6.1	69	284	216	116	13	0	155	51	3.7	31	21.9	46	2	9	7	17	6.8	
HARTFORD	57			1013.1	0.7	-6.7	-3.0	1.0	13.9	2	-18.3	19	0	25	-7.8	71	232	144	65	15	0	218	127	2.3	32	13.9	46	2	9	6	19	7.7	
DELAWARE																																	
WILMINGTON	23			1013.4	4.2	-6.9	-0.3	-0.3	17.8	1	-14.4	19	0	26	-6.1	68	193	121	51	15	0	305	102	3.0	30	14.3	31	18	4	6	21	7.7	
DIST. OF COLUMBIA																																	
WASHINGTON DULLES	84			1016.5	3.7	-4.7	-0.4	-0.5	17.8	1	-15.0	4	0	27	-5.6	71	184	96	37	13	0	224	127	2.7	30	14.8	32	18	7	5	18	6.9	
WASHINGTON NATIONAL	3			1016.5	3.5	-2.1	1.7	-0.3	17.2	1	-12.2	3	0	22	-5.6	61	189	102	44	14	0	102	51	2.8	30	21.9	46	2	9	5	19	7.0	
FLORIDA																																	
APALACHICOLA	4			1020.2	14.3	3.3	8.8	-4.2	21.7	1	-6.7	3	0	11	4.4	77	184	97	46	13	2	0	0	1.4	2	13.0	46	2	9	7	20	7.5	
DAYTONA BEACH	9			1019.0	15.6	7.8	13.7	-0.9	28.9	1	-2.2	3	0	1	8.3	69	180	128	73	13	2	0	0	1.6	28	15.0	46	2	9	6	17	6.8	
JACKSONVILLE	1			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
KEY WEST	1			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
MIAMI	1			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
ORLANDO/MC COY AFB	29			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
PENSACOLA	34			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
TALLAHASSEE	17			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
TAMPA	17			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
WEST PALM BEACH	4			1019.5	15.9	11.4	16.9	-0.6	28.9	1	-1.1	3	0	0	17.0	66	189	148	53	19	1	0	0	0.3	34	11.2	29	21	10	14	7	5.4	
GEORGIA																																	
ATHENS	244			1019.5	9.4	-1.9	3.8	-2.6	20.6	1	-11.1	3	0	24	-2.8	67	164	45	52	14	1	0	0	2.1	31	14.3	30	24	3	14	16	6.9	
ATLANTA	308			1019.5	8.7	-1.9	2.9	-0.8	18.9	1	-12.2	3	0	23	-3.3	68	158	18	36	17	0	0	0	2.1	32	12.5	27	21	3	18	20	7.7	
AUGUSTA	41			1019.5	12.2	-1.7	5.2	-2.4	23.9	1	-8.9	3	0	20	-1.7	67	184	18	24	13	0	0	0	1.8	27	12.5	25	24	9	7	15	6.3	
COLUMBUS	136			1020.1	11.9	-0.4	5.8	-0.5	20.6	1	-9.4	3	0	19	-1.1	66	174	64	69	14	2	0	0	0.9	32	9.4	24	24	3	11	17	7.4	
MACON	108			1019.5	12.7	-0.6	6.1	-0.7	22.8	1	-9.4	3	0	21	0.6	73	164	53	52	13	0	0	0	1.7	29	10.5	24	24	3	12	17	7.3	
ROME	194			1019.5	13.1	-3.1	2.2	-0.9	18.3	1	-12.2	3	0	23	-1.1	66	174	18	45	16	0	0	0	1.9	29	10.1	24	24	3	12	17	7.3	
SAVANNAH	14			1019.5	13.7	1.1	7.4	-2.5	23.3	1	-6.7	3	0	14	0.6	66	101	26	28	13	0	0	0	1.9	29	10.1	24	24	3	12	17	7.3	
HAWAII																																	
HONOLULU	8			1017.1	25.0	16.9	21.0	-0.8	32.8	9	14.4	31	3	0	16.7	82	189	589	198	22	1	0	0	0.9	2	11.6	36	14	5	10	16	7.0	
KAHULUI	15			1017.7	25.7	17.8	21.7	-0.3	28.9	9	13.9	4	0	0	16.1	77	184	4	47	12	0	0	0	0.9	2	11.6	36	14	5	10	16	7.0	
LIHUE	31			1017.4	26.2	19.4	22.9	1.1	29.4	18	15.6	2	0	0	17.2	73	121	-37	46	18	0	0	0	4.0	6	18.3	46	14	9	5	5.1		
IDAHO																																	
BOISE	865			1026.4	-3.7	-13.8	-8.8	-7.1	5.0	11	-25.0	30	0	31	-12.8	71	49	-12	25	17	0	302	102	0.2	16	10.3	56	14	5	21	7.6		
LEWISTON	431			1026.9	-5.3	-11.6	-8.4	-7.9	4.4	21	-21.1	1	0	31	-14.4	79	28	-1	5	18	0	295	254	1.0	21	14.8	56	14	5	21	7.6		
POCATELLO	1358			1026.9	-6.8	-16.8	-11.8	-6.9	6.1	11	-33.3	7	0	31	-14.4	79	28	-1	5	18	0	368	203	1.0	21	14.8	56	14	5	21	7.6		
ILLINOIS																																	
CAIRO J	94			1019.4	-0.8	-7.5	-4.1	-0.5	7.2	19	-14.4	15	0	30	-14.4	72	86	-15	33	15	0	315	127	2.5	27	11.0	46	2	9	7	19	7.3	
CHICAGO O'HARE	201			1019.4	-6.0	-15.7	-10.9	-0.6	1.7	20	-28.2	15	0	31	-14.4	72	71	71	29	30	15	0	871	711	2.5	27	11.0	46	2	9	7	19	7.3
CHICAGO MIDWAY	185			1020.1	-6.3	-15.4	-10.9	-0.6	1.7	20	-28.2	15	0	31	-14.4	72	71	71	29	30	15	0	871	711	2.5	27	11.0	46	2	9	7	19	7.3
EAST ST. LOUIS	177																																

## METRIC UNITS

- 7

State and Station	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)																																							
	Elevation (ground)	Station	Sea level	Average		Departure from normal	Highest	Date	Lowest	Date	Max 22.7° or above	Min 0° or lower	Average relative humidity	Total			Departure from normal	Greatest in 24 hours	No. of days with thunderstorms 25 mm or more	Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)	Possible sunshine																								
				Average maximum	Average minimum										C	F															C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F
				m	mb										mb	C															F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C
INDIANA																																																						
FORT WAYNE	241	987.5	1019.0	-4.2	-12.1	-8.1	-9.4	22.6	17	-23.9	11	0	31	-12.8	70	-22	30	13	0	398	23	31	20	13.4	N 17	3	5	23	8.2	43																								
INDIANAPOLIS	241	987.5	1020.0	-3.7	-11.6	-7.8	-9.3	22.6	17	-23.9	11	0	31	-10.0	68	82	30	13	0	485	23	31	20	12.5	N 14	3	5	23	8.2	43																								
SOUTH BEND	234	988.8	1018.1	-4.2	-11.6	-7.8	-9.3	22.6	17	-23.9	11	0	31	-11.1	77	82	30	13	0	485	23	31	20	13.0	N 14	2	6	23	8.6	35																								
IOWA																																																						
BURLINGTON	211	985.5	1022.5	-7.7	-16.5	-12.1	-7.1	24.8	19	-27.8	15	0	31	-17.2	68	44	6	12	0	577	35	21	31	12.5	N 13	8	2	21	6.7	41																								
DES MOINES	286	979.7	1022.5	-9.3	-17.9	-13.6	-6.6	24.2	22	-30.2	15	0	31	-17.2	68	44	6	12	0	577	35	21	31	13.4	N 13	10	4	17	6.4	41																								
DUKE CITY	332	979.7	1022.5	-9.3	-17.9	-13.6	-6.6	24.2	22	-30.2	15	0	31	-17.2	68	44	6	12	0	577	35	21	31	13.4	N 13	10	4	17	6.4	41																								
MAQUOKET	334	981.4	1024.0	-10.8	-19.8	-15.6	-7.3	-2.2	23	-37.6	15	0	31	-15.6	68	64	22	30	10	744	65	21	31	13.4	N 13	12	4	18	6.4	62																								
SIoux CITY	334	981.4	1024.0	-10.8	-19.8	-15.6	-7.3	-2.2	23	-37.6	15	0	31	-15.6	68	64	22	30	10	744	65	21	31	13.4	N 13	12	4	18	6.4	62																								
WATERLOO	265	984.5	1022.7	-11.2	-20.3	-15.8	-7.1	-1.1	23	-28.9	11	0	31	-15.6	68	34	10	10	0	437	46	21	31	12.5	N 13	9	4	18	6.4	62																								
KANSAS																																																						
GUARDIAN	448	967.2	1022.7	-5.7	-15.8	-10.7	-7.0	54.0	22	-24.4	31	0	31	-15.0	70	28	12	14	0	348	30	17	32	13.9	N 21	13	2	10	5.8	65																								
DOUGLAS CITY	787	926.5	1022.0	-5.0	-14.1	-9.6	-8.9	54.0	22	-24.4	31	0	31	-12.8	77	39	26	17	13	1	262	17	21	34	24.0	N 22	9	7	15	6.0	60																							
DOUGLAS CITY	1114	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-9.1	10.0	26	-48.1	31	0	31	-13.6	69	22	13	8	0	460	25	16	30	16.1	N 22	9	7	15	6.0	60																								
DOUGLAS CITY	1200	988.8	1020.0	-1.9	-18.6	-13.6	-																																															



## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1979

State and Station	Elevation ground	Station Q	Pressure Sea level	Temperature				Precipitation				Wind			No. of days Sunshine	No. of days Cloudy	Sky cover to sun															
				No. of days				No. of days				Force in mile (16 kilometers)																				
				Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower	Average dew point	Average relative humidity	Total	Greatest in 24 hours	25 mm or more	With thunderstorms	Total	Max run depth	Snow ice pellets	Resultant speed	Resultant direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover to sun	
MISSISSIPPI																																
MEMPHIS	84	1009.6	1021.4	8.6	-2.0	3.3	-8.9	20.0	17.4	-11.7	3	0	22	-1.1	76	221	112	91	16	2	1	0	1.0	13	10.3	24	23	4	2	75	8.4	Possible sunburn
MEMPHIS REGIONAL	270	984.2	1024.1	-4.3	-13.6	-8.9	-7.4	5.0	22	-23.9	15	0	30	-12.8	71	62	22	20	14	0	597	305	1.3	30	13.4	23	1	1	20	6.8	50	
KANSAS CITY MUN AP	224	984.7	1024.9	-6.2	-15.5	-10.8	-6.1	4.4	22	-23.9	2	0	31	-15.0	71	60	18	27	13	0	358	305	1.3	31	13.4	13	1	4	17	6.3	7	
ST LOUIS	247	984.7	1024.9	-6.0	-17.7	-11.8	-6.6	4.4	22	-27.8	3	0	31	-15.0	71	50	26	27	13	0	500	457	1.5	30	13.4	13	1	4	17	6.3	7	
ST LOUIS	163	1001.7	1024.3	-4.7	-12.6	-8.6	-6.2	3.9	17	-22.2	15	0	31	-10.0	88	50	3	22	12	0	399	457	1.7	29	16.1	24	4	19	6.8	50		
SPRINGFIELD	384	974.3	1021.8	-2.9	-13.1	-8.0	-6.5	6.7	17	-24.4	28	0	30	-10.6	78	60	17	15	16	0	587	305	0.8	25	13.4	24	7	3	21	7.2	3	
MONTANA																																
BILLINGS	1087	992.0	1022.9	-9.3	-17.8	-13.5	-7.9	2.8	19	-27.2	15	0	31	-16.7	63	18	1	10	10	0	237	406	3.2	24	15.6	5	5	10	13	6.0	49	
CALGARY	1194	937.0	1023.6	-13.1	-23.7	-18.4	-10.2	-9.9	28	-36.1	15	0	31	-16.8	76	14	-6	1	9	0	31	254	1.3	24	11.2	11	11	12	13	5.9	4	
GRAND FALLS	1110	974.5	1023.6	-13.3	-25.2	-19.5	-10.5	-9.9	14	-28.9	14	0	31	-16.7	63	14	-4	6	12	0	355	229	1.3	24	11.2	11	11	12	13	5.9	4	
HELENA	1187	982.8	1023.7	-13.3	-25.2	-19.5	-10.5	-9.9	14	-28.9	14	0	31	-16.7	63	14	-4	6	12	0	355	229	1.3	24	11.2	11	11	12	13	5.9	4	
KELSO	1166	916.4	1023.7	-13.3	-25.2	-19.5	-10.5	-9.9	14	-28.9	14	0	31	-16.7	63	14	-4	6	12	0	355	229	1.3	24	11.2	11	11	12	13	5.9	4	
KELSO	1166	916.4	1023.7	-13.3	-25.2	-19.5	-10.5	-9.9	14	-28.9	14	0	31	-16.7	63	14	-4	6	12	0	355	229	1.3	24	11.2	11	11	12	13	5.9	4	
MILES CITY	801	925.2	1024.7	-12.9	-22.5	-17.7	-10.7	1.7	21	-33.3	14	0	31	-15.9	72	38	-2	10	10	0	482	508	0.1	31	9.4	21	6	7	18	6.9	44	
MISSOULA	977	908.2	1027.2	-10.0	-19.4	-14.7	-8.4	6.1	21	-33.3	14	0	31	-15.9	72	32	2	10	10	0	568	508	0.1	31	9.4	21	6	7	18	6.9	44	
NEBRASKA																																
GRAND ISLAND	561	953.3	1023.9	-8.9	-18.3	-13.6	-8.2	1.1	22	-27.8	31	0	31	-17.2	72	21	9	6	11	0	279	178	2.6	32	15.5	34	23	15	3	13	4.9	54
LINCOLN	359	977.7	1024.2	-8.8	-18.3	-13.6	-8.2	2.8	22	-27.8	31	0	31	-17.2	72	21	10	12	0	282	229	2.6	32	15.5	34	23	15	3	13	4.9	54	
NORTH PLATTE	471	964.1	1024.5	-10.1	-19.2	-14.6	-7.3	3.0	22	-30.6	7	0	31	-16.1	68	22	10	10	0	310	330	3.2	32	16.1	34	23	13	6	12	5.2	67	
OMAHA (EBBLEY)	298	919.4	1023.7	-8.7	-20.3	-14.4	-7.7	3.9	22	-30.6	7	0	31	-16.1	68	22	10	10	0	310	330	3.2	32	16.1	34	23	13	6	12	5.2	67	
OMAHA (NORTH)	396	975	1023.7	-7.5	-16.2	-11.8	-6.6	4.4	22	-23.9	31	0	31	-16.7	69	28	9	9	0	284	229	2.2	33	13.0	34	22	12	2	17	6.0	51	
SCITSLUFF	1204	978.8	1022.5	-9.2	-17.6	-13.4	-8.8	2.2	22	-25.6	14	0	31	-16.7	69	19	11	11	0	287	127	1.9	32	15.6	31	1	11	10	10	5.5	74	
VALENTINE	786	926.2	1027.2	-8.9	-22.1	-15.5	-9.1	7.8	22	-33.3	14	0	31	-17.2	68	21	21	13	7	10	274	356	2.5	30	17.4	20	12	6	11	5.2	74	
NEVADA																																
ELKO	1530	843.9	1014.8	0.7	-11.1	-5.2	-0.3	7.2	11	-25.6	1	0	30	-7.8	81	49	17	27	13	0	211	51	0.2	30	10.3	24	11	2	7	22	8.1	17
ELY	1904	806.0	1019.0	0.2	-16.8	-8.3	-3.6	9.4	4	-30.6	29	0	31	-17.2	52	23	23	6	16	0	345	203	1.9	20	13.2	24	11	2	7	22	8.1	17
LAS VEGAS	695	941.1	1019.2	9.7	0.4	5.1	-1.7	16.1	12	-8.3	29	0	12	-6.0	56	55	44	15	9	1	251	152	0.7	20	13.2	24	11	2	7	22	8.1	17
RENO	1342	863.2	1014.3	3.4	-6.9	-1.7	-1.1	11.1	12	-17.2	1	0	30	-6.1	72	17	-14	7	10	0	163	76	0.4	15	13.0	24	11	2	7	22	8.1	17
WINNEVOCA	1311	868.6	1019.6	2.6	-10.0	-3.7	-1.6	16.4	11	-23.3	26	0	30	-6.9	66	27	-3	13	10	0	132	76	0.6	5	10.3	24	11	2	7	22	8.1	17
NEW HAMPSHIRE																																
CONCORD	104	999.7	1012.7	-0.3	-9.4	-4.8	-1.5	13.3	2	-21.7	12	0	28	-0.4	69	205	138	54	16	0	1074	381	2.2	30	14.6	24	11	2	7	22	8.1	17
WASHINGTON DCS	1000			-8.9	-18.3	-13.6	-1.0	3.9	2	-32.2	11	0	30	-7.8	81	49	17	27	13	0	211	51	0.2	30	10.3	24	11	2	7	22	8.1	17
NEW JERSEY																																
ATLANTIC CITY	20	1011.9	1014.3	4.7	-5.3	-0.3	-0.7	15.4	2	-16.1	19	0	26	-3.9	74	181	91	57	17	0	361	403	3.1	28	13.4	24	11	2	7	22	8.1	17
ATLANTIC CITY U	20			3.9	-2.7	0.6	-0.9	11.7	2	-11.7	19	0	26	-3.9	74	181	91	57	17	0	361	403	3.1	28	13.4	24	11	2	7	22	8.1	17
NEWARK	2	1013.2	1014.2	4.2	-3.4	0.3	0.6	17.2	2	-14.4	19	0	20	-6.4	72	227	183	91	18	0	239	127	3.4	30	17.0	31	18	6	19	7.4	33	
TRENTON U	17			3.8	-3.7	0.1	0.0	16.7	2	-13.9	19	0	23	-6.4	72	227	183	91	18	0	239	127	3.4	30	17.0	31	18	6	19	7.4	33	
NEW MEXICO																																
ALBUQUERQUE	1419	936.4	1017.3	6.2	-5.3	-0.5	-1.3	13.3	12	-13.3	30	0	26	-7.2	60	27	20	18	6	0	55	51	2.0	33	18.8	24	11	6	14	5.7	52	
CLAYTON	1515			1.5	-11.2	-4.8	-1.3	15.0	12	-23.3	1	0	31	-7.2	60	19	19	10	10	0	175	76	0.6	18	16.1	24	11	6	14	5.7	52	
ROSELLE	1112	889.6	1017.5	7.5	-4.3	-1.6	-1.8	16.9	12	-22.8	2	0	25	-8.0	68	10	7	8	6	0	18	51	0.6	18	16.1	24	11	6	14	5.7	52	
NEW YORK																																
ALBANY	84	1003.4	1014.4	-0.9	-10.1	-5.5	-0.3	12.8	2	-23.9	19	0	26	-6.9	78	162	106	42	17	0	673	279	2.8	29	17.4	24	11	3	6	22	8.0	27
BUFFALO	485	952.0	1013.6	-2.4	-9.6	-6.0	-0.4	11.1	2	-21.7	12	0	30	-10.0	74	162	103	36	23	0	688	279	2.0	20	15.8	24	11	3	6	22	8.0	27
NEW YORK U	215	987.8	1014.7	-3.1	-9.7	-6.4	-0.8	12.4	1	-21.7	12	0	29	-10.0	74	162	103	36	23	0	688	279	2.0	20	15.8	24	11	3	6	22	8.0	27
NEW YORK U	40	1010.5	1013.9	4.6	-2.8	0.7	0.8	17.2	2	-13.3	19	0	20	-6.4	72	227	183	91	18	0	239	127	3.4	30	17.0	31	18	6	19	7.4	33	
NEW YORK U	4.1	1013.2	1013.9	4.1	-2.8	0.7	0.8	17.2	2	-13.3	19	0	20	-6.4	72	227	183	91	18	0	239	127	3.4									

## CLIMATOLOGICAL DATA

METRIC UNITS

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)	Sky cover (tenths)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Station	mb	C	F	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32° or above	Min 0° or lower	No. of days	Average relative humidity	Total					Resultant		Speed (1.6 kilometers)	Direction	Date	Clear 0-3	Partly cloudy, 4-7	Cloudy 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
																mm	mm				mm	mm							mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



## CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1979

Station and Station Elevation ground	Pressure		Temperature				Precipitation				Wind				No. of days sunrise to sunset	Sky cover, tenths sunrise to sunset																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Station Q	Sea level	Average				Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower	Average relative humidity			Precipitation		Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
			Average maximum	Average minimum	Average	C											F	mm	in	mm	in	m.p.h.	k.m.p.h.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
																								No. of days	No. of days	Fastest mile (1.6 kilometers)	Direction	Speed																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

# CLIMATOLOGICAL DATA

METRIC UNITS

JANUARY 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind			No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)	Possible sunshine																						
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Total	Greatest in 24 hours	25 mm or more	With thunderstorms	Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)				Direction	Date																				
												Max 32.2 °C or above	Min. 0 °C or lower															Average relative humidity	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	m/s
WASHINGTON	122	1002.7	1019.4	6.3	0.1	3.2	-0.2	11.7	20	-6.7	1	0	15	-5.0	97	-90	24	10	0	13	0	1.9	8	9.4	7	18	7.2	45																			
	718	935.7	1024.3	-7.6	-16.3	-11.9	-8.3	1.1	20	-30.0	1	0	31	-13.3	28	-35	11	10	0	419	432	0	N	4	3	23	7.9	41																			
	1206	878.4		-5.6	-11.6	-7.6	-3.9	7.2	20	-22.9	1	0	31		120	-208	31	15	1077	1574	0	N	4	0	2	20	7.6	11																			
	289			-4.8	-10.3	-7.3	-3.5	7.2	20	-23.3	7	0	31	-13.3	23	-15	17	0	346	279	0	N	4	5	22	8.1																					
	321	985.4	1026.2	-4.6	-14.3	-9.6	-7.1	5.6	21	-23.3	7	0	31		23	-11	17	0	333	279	0	N	4	5	22	8.1																					
WEST INDIES	4	1013.9	1016.3	28.9	23.7	25.8	1.7	32.2	28	20.6	21	1	0	20.4	33	-62	10	16	0	0	0	2.6	6	13.4	3	20	3	4.9	67																		
	WEST VIRGINIA	763	925.5	1017.9	1.2	-8.4	-3.6	-3.2	17.2	1	-20.0	3	0	29	-5.4	135	47	40	18	1	704	229	1.8	25	13.9	4	23	8.6																			
		CHARLESTON	286	983.4	1016.7	2.1	-6.4	-2.2	-3.6	20.6	1	-16.1	3	0	27	-6.7	145	78	33	23	0	699	177	2.2	26	15.6	1	4	26	8.7																	
		ELKINS	594	943.8		1.4	-8.5	-3.5	-2.4	17.8	1	-21.7	9	0	30		149	66	42	22	782	229	1.8	26	15.6	1	2	28	9.0																		
		MARTINSBURG	232	987.5	1018.7	0.8	-7.1	-3.4	-4.4	15.0	1	-16.1	3	0	28	-7.2	134	54	37	19	0	373	127	1.6	27	10.3	2	3	24	8.6																	
WISCONSIN	187			-0.1	-7.5	-3.8	-4.3	15.6	1	-16.1	3	0	30		108	25	26	17	478	162	1.6	27	15.2	2	3	24	8.6	41																			
	GREEN BAY	208	991.5	1019.9	-9.9	-19.2	-14.5	-5.3	-1.1	28+	-31.7	16+	0	31	-17.8	45	18	14	13	0	610	635	2.5	30	11.2	10	3	16	6.0	31																	
		LA CROSSE	769	994.9	1022.1	-9.1	-19.8	-14.6	-5.6	-2.2	28+	-31.1	16	0	31	-14.1	61	37	11	0	754	813	1.8	31	11.2	10	3	16	6.0	31																	
		MILWAUKEE	204	992.6	1019.4	-7.8	-14.9	-11.3	-4.3	0.0	20	-26.7	15+	0	31	-16.7	43	11	16	12	0	683	864	2.1	30	13.0	8	7	16	6.7	48																
WYOMING	1627	834.7	1021.6	-6.7	-19.1	-12.9	-8.0	3.3	18	-33.9	1	0	31	-17.2	21	8	7	10	0	414	178	4.6	23	19.7	9	8	14	6.4																			
	CASPER	806.6	1018.6	-1.9	-14.4	-8.2	-5.2	6.7	24+	-27.2	1	0	31	-17.2	50	7	2	7	0	170	162	4.0	30	20.6	7	9	15	6.3	67																		
	Cheyenne	1496	826.6	1025.2	-10.7	-23.4	-17.1	-10.2	2.8	16	-35.0	31+	0	31	-14.4	19	7	8	0	404	508	0.9	16	11.2	7	7	17	6.3	45																		
	LANDER																																														
	SHERIDAN	1704	878.6	1025.6	-9.2	-23.6	-13.9	-9.8	5.0	21	-34.4	5	0	31	-13.6	12	-5	7	10	0	272	457	2.0	29	15.6	4	14	13	6.7	56																	



## (Base 65°F.)

(Base 65°F.)

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# COOLING DEGREE DAYS

(Base 65 F.)

JANUARY 1979

State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month
ALABAMA				HAWAII				NEBRASKA			
BIRMINGHAM U	0	0	0	HILLO	155	155	197	GRAND ISLAND	0	0	0
BIRMINGHAM	0	0	9	HONOLULU	159	159	224	LINCOLN	0	0	0
HUNTSVILLE	0	0	0	HONOLULU	197	197	204	LINCOLN	0	0	16
MOBILE	0	0	24	LIHOE	243	243	194	NORTH PLATTE	0	0	0
MONTGOMERY	0	0	0					OMAHA (NORTH)	0	0	0
ALASKA								SCOTTSDALE	0	0	0
ANCHORAGE	0	0	0	KAHOOLA	0	0	0	VALENTINE	0	0	0
ANNETTE	0	0	0	LEISTON	0	0	0				
BARROW	0	0	0	POCATELLO	0	0	0	NEVADA			
BARTER ISLAND	0	0	0					ELKO	0	0	0
BETHEL	0	0	0	ILLINOIS				FLY	0	0	0
BEYLER	0	0	0	CATAWBA	0	0	0	LAS VEGAS	0	0	0
BIO DELTA	0	0	0	CHICAGO MAHE	0	0	0	PEND	0	0	0
BOLD BAY	0	0	0	CHICAGO MIDWAY	0	0	0	WINNEBOCA	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW HAMPSHIRE			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	CUNNING	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	MT WASHINGTON OBS	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW JERSEY			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ATLANTIC CITY	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ATLANTIC CITY U	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEWARK	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	THRENTON U	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW MEXICO			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ALBUQUERQUE	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	CLAYTON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	RUSSELL	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW YORK			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ALBANY	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	BINGHAMTON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	BUFFALO	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW YORK U	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW YORK KENNEDY	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NEW YORK LA GUARDIA	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ROCHESTER	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	SYRACUSE	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NORTH CAROLINA			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ASHEVILLE	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	CAPE HATTERAS R	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	CHARLOTTE	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	GREENSBORO	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	RALEIGH	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	WILMINGTON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	NORTH DAKOTA			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	BISMARCK	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	FARGO	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	WILLISTON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	OHIO			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	AKRON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	CINCINNATI ABBE NB	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	CLEVELAND	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	COLUMBUS	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	DAYTON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	MANSFIELD	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	TOLLEDO	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	YOUNGSTOWN	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	OKLAHOMA			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	OKLAHOMA CITY	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	TULSA	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	OREGON			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ASTORIA	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	BURNS U	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	EUGENE	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	MEMPHIS	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PENDLETON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PORTLAND	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	SALEM	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	SEXTON SUMMIT R	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PACIFIC AREA			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	GUAM TAJAC R	391	391	381
FAIRBANKS	0	0	0	CHICAGO	0	0	0	JUNISTON	338	338	364
FAIRBANKS	0	0	0	CHICAGO	0	0	0	KURUR R	516	516	502
FAIRBANKS	0	0	0	CHICAGO	0	0	0	KWAJALEIN	502	502	502
FAIRBANKS	0	0	0	CHICAGO	0	0	0	MAJURO	507	507	490
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PAGO PAGO	502	502	474
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PUNAPE R	574	574	484
FAIRBANKS	0	0	0	CHICAGO	0	0	0	TRUK ROEN ISLAND	533	533	494
FAIRBANKS	0	0	0	CHICAGO	0	0	0	WAKE	392	392	372
FAIRBANKS	0	0	0	CHICAGO	0	0	0	YAP R	490	490	477
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PENNSYLVANIA			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	ALLEGANY	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	FRIE	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	HARRISBURG	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PHILADELPHIA	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PITTSBURGH	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	SCRANTON	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	WILLIAMSPORT	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0				
FAIRBANKS	0	0	0	CHICAGO	0	0	0	RHODE ISLAND			
FAIRBANKS	0	0	0	CHICAGO	0	0	0	BLACK ISLAND	0	0	0
FAIRBANKS	0	0	0	CHICAGO	0	0	0	PROVIDENCE	0	0	0



# STORM SUMMARY

JANUARY 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				φ ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE	
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS				
Alabama	*																												
Alaska	*																												
Arizona								3				5															7	6	
Arkansas																													
California	3	2			6			?	?										9	?	7	7			1		?	?	
Colorado																													
Connecticut																													
Delaware												4														1		7	
Florida	12	6		1	6							6	C																
Georgia																													
Hawaii																													
Idaho												4															2	6	C
Illinois																													
Indiana																													
Iowa																													
Kansas																													
Kentucky																													
Louisiana										45	6			5					6	?	6								
Maine																													
Maryland & DC												3																	
Massachusetts																													
Michigan										1	4																		
Minnesota											3																		
Mississippi																													
Missouri												3																	
Montana	*																												
Nebraska																													
Nevada																													
New Hampshire																													
New Jersey	*																												
New Mexico	*																												
New York																													
North Carolina																													
North Dakota																													
Ohio																													
Oklahoma	*																												
Oregon																													
Pacific																													
Pennsylvania												4																	
Puerto Rico																													
Rhode Island																													
South Carolina												3																	
South Dakota	*																												
Tennessee																													
Texas	1	1			4			?	?			5																6	7
Utah																													
Utah																													
Vermont																													
Virginia																													
Virgin Islands	*											4																	
Washington																													
West Virginia	*																												
Wisconsin																													
Wyoming																													

## Average monthly values

JAN 26 1979

ALBANY, NY 1001 ME										ALBUQUERQUE, NM 837 ME										AMARILLO, TX 561 ME										ANCHORAGE, AK 1001 ME										ANCONITA, AK 1011 ME																																																																																																																																																																																																																																																																																																																																																																																																													
Standard pressure surface mb		No of observations		Dynamic height meters		Temperature °C		Resultant Wind		Dew Point °C		Direction ten's of deg		Speed in m/s		No of observations		Dynamic height meters		Temperature °C		Resultant Wind		Dew Point °C		Direction ten's of deg		Speed in m/s		No of observations		Dynamic height meters		Temperature °C		Resultant Wind		Dew Point °C		Direction ten's of deg		Speed in m/s																																																																																																																																																																																																																																																																																																																																																																																																											
5FC	31	86	-66.7	-99.1	29	2.6	30	1,610	-2.9	-7.8	16	2.2	31	1,095	-7.1	-9.8	30	1.7	31	-5	-6.6	-9.9	02	1.7	31	37	-11.2	-31.6	69	2.0	21	167	-64.9	-64.0	2.5	46	157	-7.4	-5.8	08	2.8	34	518	-67.7	-99.4	4.6	30	1,964	-2.7	-9.8	30	2.4	31	1,494	-3.9	-11.6	28	6.5	31	1,379	-6.0	-12.9	92	4.1	31	1,929	-5.8	-11.9	28	6.5	31	1,852	-8.6	-15.1	5	3	2,350	-11.4	-22.1	19	6.3	31	2,405	-9.6	-18.0	25	4.0	30	2,686	-11.5	-22.2	26	30.0	31	3,014	-6.9	-14.1	28	5.2	31	2,969	-5.6	-16.1	24	10.9	31	2,876	-14.1	-22.1	19	6.0	31	2,935	-12.1	-21.8	28	5.0	31	3,450	-13.6	-22.9	25	44.1	30	3,690	-9.9	-16.9	26	11.5	31	3,577	-6.7	-19.5	26	17.7	31	3,435	-17.3	-25.6	21	5.9	31	3,449	-15.6	-25.0	16	6.3	30	3,055	-16.7	-25.6	26	24.3	30	4,204	-17.1	-21.6	28	17.5	31	4,195	-14.4	-23.0	24	17.7	31	4,031	-21.3	-30.2	21	5.9	31	4,047	-25.5	-33.6	2	6.3	31	4,738	-24.0	-32.5	27	9.0	30	4,700	-20.6	-30.8	28	26.2	30	5,702	-21.9	-27.6	28	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,653	-21.3	-32.4	27	20.9	31	5,300	-30.8	-39.4	23	7.2	31	5,447	-28.7	-36.7	28	10.2	30	5,405	-25.4	-34.6	26	28.6	30	5,770	-21.9	-31.0	27	20.5	31	5,

ATHENS, GA 98B MB										BARROW, AK 1015 MB										BARTER ISLAND, AK 1014 MB										RETHEL, AK 99B MB										BISHARON, ND 96D MB									
SFC	31	246	1.2	-2.9	31	1.9	30	8	-18.3	-20.5	09	2.6	30	15	-17.0	-20.4	13	1.2	31	39	-5.3	-9.0	09	3.4	31	503	-20.8	-26.6	31	2.1																			
1000							25	163	-13.1	-15.3	10	2.6	23	178	-10.0	-15.3	13	1.8	16	122	-3.7	-7.4	08	4.4																									
950	31	562	2.5	-5.3	28	4.0	36	518	-9.3	-14.3	12	3.7	30	519	-8.9	-15.3	12	2.9	31	432	-1.2	-6.1	13	6.2	27	597	-21.3	-24.2	31	4.0																			
900	31	1,000	2.8	-5.5	27	7.0	30	937	-8.6	-15.1	13	3.5	30	939	-7.4	-15.8	16	1.7	31	862	-3.3	-8.4	15	7.5	31	986	-17.0	-19.6	32	8.0																			
850	31	1,463	2.2	-8.1	27	10.1	30	1,380	-9.9	-15.8	15	3.5	30	1,394	-8.9	-17.5	18	2.2	31	1,312	-5.6	-10.8	16	9.0	31	1,416	-15.6	-19.3	32	6.7																			
800	31	1,952	1.3	-9.8	27	12.9	30	1,844	-11.7	-18.8	15	3.7	30	1,851	-11.6	-20.4	18	2.7	31	1,786	-8.1	-13.9	17	10.1	31	1,875	-18.4	-21.1	31	11.8																			
750	31	2,470	1.7	-12.2	27	15.2	30	2,338	-14.7	-22.5	17	3.8	30	2,348	-14.7	-23.5	17	2.9	31	2,263	-11.7	-19.2	17	11.0	31	2,363	-22.8	-27.8	31	10.6																			
700	31	3,020	-2.6	-15.5	26	18.0	30	2,858	-17.7	-26.2	17	3.4	30	2,863	-17.5	-26.2	17	2.7	31	2,811	-14.4	-23.0	17	9.0	31	2,881	-17.8	-29.4	31	11.3																			
650	31	3,604	-5.8	-18.7	27	19.9	30	3,400	-21.1	-29.7	19	3.3	30	3,415	-20.6	-29.4	20	2.1	31	3,369	-18.1	-27.0	17	8.8	31	3,433	-20.3	-26.7	30	12.5																			
600	31	4,228	-9.0	-21.5	26	22.5	30	3,995	-25.0	-33.6	20	3.7	30	4,002	-24.6	-33.0	21	2.3	31	3,963	-22.2	-31.1	17	9.4	31	4,022	-23.4	-30.4	30	13.1																			
550	31	4,897	-13.3	-25.7	26	26.4	30	4,623	-28.9	-36.3	20	3.8	30	4,631	-28.5	-37.1	27	2.7	31	4,596	-26.8	-35.6	18	9.3	31	4,655	-26.9	-33.8	30	13.7																			
500	31	5,618	-17.2	-29.9	26	29.0	30	5,298	-33.7	-39.3	21	4.5	30	5,307	-33.0	-41.4	23	4.0	31	5,277	-31.6	-39.6	19	9.6	31	5,336	-31.2	-38.8	30	15.5																			
450	31	6,400	-21.2	-34.6	26	33.6	29	6,044	-38.5	-44.2	21	5.4	30	6,054	-38.0	-46.4	19	4.7	31	6,023	-36.1	-44.1	19	10.1	31	6,082	-36.2	-43.8	29	16.5																			
400	31	7,255	-25.3	-38.6	26	37.4	29	6,835	-44.5	-46.0	21	6.4	30	6,843	-43.8	-47.7	23	4.1	29	6,805	-42.7	-46.8	19	9.9	31	6,883	-41.9	-44.2	29	17.7																			
350	31	8,203	-34.9	-43.2	26	41.6	29	7,722	-49.2	-50.6	20	5.6	30	7,733	-48.7	-50.6	23	4.7	28	7,688	-48.2	-50.6	19	10.3	31	7,779	-47.4	-49.6	29	20.3																			
300	31	9,258	-42.7	-48.6	26	45.2	29	8,720	-53.9	-55.3	21	6.3	30	8,733	-53.4	-55.3	24	5.0	28	8,691	-52.4	-54.8	20	13.1	30	8,783	-52.6	-54.8	28	22.9																			
250	30	10,668	-50.5	-56.5	26	45.4	29	9,884	-56.5	-58.1	23	6.5	30	9,898	-56.1	-58.1	25	6.1	27	9,860	-53.8	-56.2	20	13.2	30	9,952	-55.3	-57.5	29	23.5																			
200	30	11,900	-58.8	-64.8	26	47.7	26	11,300	-55.4	-57.4	23	6.7	29	11,310	-54.8	-56.8	26	6.4	26	11,291	-50.7	-52.7	21	11.6	29	11,385	-53.3	-55.3	29	21.6																			
150	25	12,743	-63.8	-70.8	26	48.2	26	12,254	-54.4	-56.4	23	10.4	27	12,179	-53.5	-55.5	27	10.6	26	12,163	-49.6	-51.6	21	11.5	28	12,246	-52.8	-54.8	29	24.6																			
100	25	13,708	-59.4	-66.4	26	49.4	26	13,194	-58.0	-60.0	24	11.4	27	13,171	-57.1	-59.1	27	10.9	26	13,174	-49.4	-51.4	22	12.8	28	13,241	-52.0	-54.0	29	26.5																			
125	27	14,849	-61.7	-68.7	26	37.8	28	14,312	-54.9	-56.9	24	12.4	27	14,395	-53.6	-55.6	27	14.4	26	14,369	-45.6	-47.6	22	12.2	28	14,415	-53.9	-55.9	29	18.0																			
100	27	16,217	-65.1	-72.1	26	34.1	27	15,731	-55.6	-57.6	25	15.5	27	15,778	-55.4	-57.4	27	16.4	26	15,830	-49.8	-51.8	23	12.7	28	15,846	-54.7	-56.7	29	18.8																			
80	28	17,574	-65.5	-72.5	26	25.5	27	17,151	-56.5	-58.5	25	17.8	27	17,205	-55.1	-57.1	28	19.1	26	17,290	-49.7	-51.7	23	12.5	27	17,273	-55.3	-57.3	29	16.5																			
60	25	18,385	-64.7	-71.7	26	19.4	27	17,997	-57.1	-59.1	25	19.8	28	18,070	-55.0	-57.0	27	20.6	25	18,164	-49.7	-51.7	24	12.3	27	18,124	-55.8	-57.8	29	17.9																			
40	25	19,331	-63.1	-70.1	26	17.4	25	18,891	-57.3	-59.3	26	20.7	26	19,053	-55.9	-57.9	28	22.0	25	19,174	-49.7	-51.7	24	13.0	26	19,096	-56.9	-58.9	29	16.7																			
20	25	20,950	-61.1	-68.1	21	11.1	21	20,413	-58.6	-60.6	26	24.2	26	20,473	-58.6	-60.6	26	24.2	26	20,500	-50.0	-52.0	24	14.0	27	20,500	-50.0	-52.0	29	17.0																			
0	25	21,883	-59.7	-66.7	27	42.0	17	21,621	-57.8	-59.8	27	23.8	27	21,686	-55.5	-57.5	28	26.2	24	21,810	-51.0	-53.0	26	15.6	19	21,685	-57.5	-59.5	31	13.6																			
0	25	23,653	-56.2	-63.2	27	10.9	10	23,625	-54.1	-56.1	26	27.4	22	23,530	-55.5	-57.5	28	29.4	24	23,676	-52.5	-54.5	27	18.7	13	23,545	-56.1	-58.1	32	12.4																			
0	25	24,819	-53.6	-60.6	27	9.6	5	24,911	-48.3	-50.3	26	21.4	24	24,733	-54.5	-56.5	28	32.1	21	24,905	-50.6	-52.6	27	18.4	11	24,664	-57.4	-59.4	32	14.1																			
0	25	26,262	-53.1	-60.1	26	11.2	20	26,174	-55.2	-57.2	20	26.1	24	26,174	-55.2	-57.2	28	34.3	17	26,421	-48.1	-50.1	27	19.2	6	26,313	-54.5	-56.5	32	12.4																			
15	19	28,143	-47.1	-54.1	26	14.1	15	28,125	-54.2	-56.2	15	18.2	15	28,125	-54.2	-56.2	15	33.8	13	28,221	-49.8	-51.8	28	26.8	6	28,132	-54.6	-56.6	32	12.4																			

BOISE, ID 920 MB												BOOTHVILLE, LA 1020 MB												BROWNSVILLE, TX 1018 MB												BUFFALO, NY 988 MB												CAPE HATTERAS, NC 1017 MB											
SFC	30	871	-10.1	-13.9	11	4	31	1	7.2	3.7	01	3.4	30	7	11.0	8.3	34	1.0	31	218	-6.7	-8.1	26	2.7	31	4	6.5	2.5	29	2.3																													
1000							31	183	7.9	4.8	02	3.4	30	157	11.3	8.3	01	1.4	5	251	-13.8	-17.8			28	159	6.8	0.0	29	3.0																													
950							31	585	8.6	1.4	30		9	30	586	10.7	7.1	15	1.8	31	521	-7.5	-9.0	25	7.6	31	500	4.7	-1.3	26	8.6																												
900	30	1,041	-8.6	-10.7	11	7	31	1,030	7.2	-5.5	27	3.6	30	1,037	10.8	2.0	20	3.4	31	941	-9.1	-10.6	25	11.2	31	1,000	2.9	-4.8	26	8.6																													
850	30	1,185	-8.0	-10.9	15	4	31	1,500	7.1	-6.7	27	6.5	30	1,513	9.2	-1.4	21	5.2	31	1,383	-9.8	-13.9	25	12.7	31	1,462	1.7	-4.8	26	11.1																													
800	30	1,1957	-9.7	-12.9	24	9	31	1,998	7.1	-7.9	27	9	30	2,018	9.7	-3.6	1	7	31	1,851	-14.5	-18.6	14	31	1,950	1.7	-8.8	26	18.5																														
750	30	2,457	-9.2	-16.1	29	3	01	2,523	3.4	-10.0	26	11.7	30	2,595	6.3	-7.5	24	3	01	2,340	-11.3	-16.9	26	18.7	31	2,466	-1.7	-12.9	26	17.3																													
700	30	2,989	-11.5	-18.4	30	5	7	31	3,080		-12.2	26	15.4	30	3,109	4.0	-13.2	25	10.7	31	2,875	-13.2	-19.1	26	18.3	31	3,014	-3.0	-15.5	26	19.2																												
650	30	3,555	-14.1	-21.7	30	6	8	31	3,675	-1.5	-15.6	26	18.6	30	3,709		-15.9	26	12.8	31	3,438	-15.4	-24.0	26	20.6	29	3,608	-6.0	-18.3	26	21.7																												
600	30	4,158	-17.4	-25.2	30	8	5	31	4,308	-1.5	-21.2	26	21.2	30	4,348	-3.0	-19.5	26	15.1	31	4,039	-18.2	-27.2	26	23.4	29	4,231	-9.3	-21.2	26	24.7																												
550	30	4,805	-21.5	-29.0	30	10	3	31	4,987	-9.0	-23.1	26	23.9	30	5,031	-7.0	-24.1	26	18.1	31	4,685	-21.5	-31.2	26	26.7	29	4,899	-12.9	-25.5	27	26.7																												
500	30	5,502	-26.0	-34.0	30	12	1	31	5,718	-13.9	-27.4	26	26.5	30	5,768	-19.2	-27.3	26	22.2	31	5,481	-26.1	-34.7	26	27.9	29	5,600	-17.8	-30.0	27	28.0																												
450	30	6,255	-31.0	-38.1	31	13	2	30	6,509	-19.2	-33.6	26	30.0	30	6,568	-17.2	-31.1	26	25	30	6,400	-30.9	-38.7	26	30.0	29	6,600	-22.9	-34.6	27	38.0																												
400	30	7,083	-36.8	-42.4	31	15	3	30	7,374	-25.3	-36.8	26	30.4	30	7,439	-23.4	-35.4	26	29.1	30	6,966	-36.4	-44.0	26	34.2	29	7,253	-28.8	-39.8	26	37.5																												
350	28	8,015	-42.7	-48.7	31	18	2	30	8,333	-32.3	-43.7	26	35.0	30	8,404	-30.6	-41.2	26	31.8	30	7,883	-42.2	-55.5	26	35.8	29	8,199	-35.5	-44.3	26	40.8																												
300	28	9,037	-49.6	-55.6	31	22	3	30	9,399	-40.6	-47.9	26	40.1	30	9,478	-39.2	-48.8	26	34.4	30	8,907	-48.4		26	41.5	9	9,251	-43.3	-47.9	27	43.4																												
250	28	10,213	-53.2	-59.6	31	24	2	30	10,616	-49.7		26	44.9	30	10,702	-49.8		26	39.1	30	10,095	-52.8		26	40.8	29	10,460	-50.3		27	45.6																												
200	28	11,623	-57.3	-63.4	31	26	2	30	12,045	-55.4		26	48.2	30	12,138	-54.8		26	42.2	30	11,528	-58.4		26	43.8	29	11,893	-55.9		27	48.8																												
175	28	12,449	-56.5		30	22	7	30	12,883	-60.7		26	48.0	30	12,966	-62.1		27	38.9	30	12,381	-55.6		26	35.9	28	13,737	-58.1		27	48.6																												
150	28	13,550	-55.6		30	19	4	30	14,136	-63.4		26	39.8	30	13,911	-65.1		26	37.1	30	13,336	-54.9		26	32.6	28	13,705	-59.2		26	41.5																												
125	27	14,610	-55.9		30	16	7	30	14,950	-66.0		26	36.4	30	15,012	-69.3		26	34.1	30	14,529	-56.0		27	14,840	-61.6		27	39.1																														
100	27	16,027	-57.1		30	14	9	30	16,290	-69.9		26	29.0	30	16,335	-72.0		26	25.7	30	15,994	-57.5		26	15,212	-64.4																																	
80	25	17,435	-56.6		30	12	3	30	17,616	-69.9		26	19.4	30	17,645	-72.8		26	17.3	29	17,351	-59.8		24	17,574	-65.1																																	
60	25	18,282	-56.8		30	10	2	30	18,415	-68.9		26	16.2	30	18,435	-71.9		26	11.7	29	18,124	-59.9		24	18,342	-62.9																																	
40	25	19,261	-56.7		31	9	6	29	19,147	-65.6		26	12.4	28	19,156	-66.7		26	1.7	27	19,106	-59.3		24	19,336	-62.9																																	
20	25	20,416	-57.1		32	8	3	29	20,463	-63.0		26	7.7	28	20,469	-63.3		25	1.6	25	20,300	-59.2		24	20,465	-60.8			26	15.1																													
0	24	21,827	-57.1		32	8	3	28	21,851	-59.2		26	3.9	27	21,849	-59.8		30	1.4	24	21,710	-58.7		23	21,845	-58.6			26	13.5																													
30	23	23,633	-56.8		34	7	2	27	23,678	-55.0		00	1.4	25	23,667	-55.1		06	1.3	23	23,526	-57.9		23	23,683	-54.9			27	6.9																													
25	20	24,533	-55.3		01	8	2	27	24,581	-55.0		08	1.6	25	24,436	-53.3		01	2.6	24	24,681	-56.3		23	24,851	-52.8			27	6.9																													
20	20	26,237	-55.9		05	7	2	25	26,290	-53.9		18	1.6	22	26,262	-50.1		10	2.6	19	26,502	-53.5		23	26,290	-52.8			27	11.0																													
15	15	28,134			03	11	4	27	28,222	-86.3		13	2.7	18	28,197	-85.3		13	6.8	11	27,956	-50.6		20	28,123	-46.8			27	14.0																													
10	5	31,099	-86.3						9	30,966	-82.4									6	30,540	-85.8			10	30,962	-86.0																																



# RAWINSONDE DATA

Average monthly values

JANUARY 1979

ENTRINCH, CA												CHARLESTON, SC												CRATHAM, MA												CHIMURHUA, MEXICO											
901 MB												1017 MB												1011 MB												857 MB											
No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s
1	11	-10.5	-14.9	31	1.1	31	1.46	-6	-2.7	31	1.5	31	1.1	8.8	-8	-2	-3.6	26	1.4	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5				
2	11	224	-18.0	-21.0	31	1.1	31	1.46	-6	-2.7	31	1.5	31	1.1	8.8	-8	-2	-3.6	26	1.4	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5			
3	11	448	-12.0	-15.0	31	1.1	31	1.46	-6	-2.7	31	1.5	31	1.1	8.8	-8	-2	-3.6	26	1.4	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5			
4	11	902	-10.7	-12.0	29	2.9	31	1.017	1.0	-5.2	28	4.8	31	1.018	6.0	-2.6	25	7.5	31	936	-3.9	-5.0	27	5.6	29	1.498	5.6	-4.4	22	2.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
5	11	1,380	-11.1	-14.2	26	3.2	31	1.477	1.1	-7.7	27	8.3	31	1.481	4.5	-5.6	25	9.9	31	1,388	-4.4	-11.3	27	9.8	29	1.498	5.6	-4.4	22	2.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
6	11	1,858	-11.5	-16.7	27	5.2	31	1.588	1.9	-9.1	27	11.1	31	1.578	11.0	-8.5	24	13.1	31	1,974	-5.5	-12.3	26	12.4	31	1.969	5.4	-5.8	23	5.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
7	11	2,385	-14.4	-25.5	28	7.3	31	1.888	-7.7	-12.4	27	13.0	31	1.896	1.1	-11.8	25	15.2	31	2,370	-7.1	-14.7	26	14.4	31	2,515	3.8	-9.9	25	8.5	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
8	11	2,928	-18.4	-20.2	26	9.8	31	2.031	-2.8	-16.3	27	14.2	31	2.049	-7.7	-14.4	26	17.1	31	2,911	-9.4	-16.9	26	17.1	31	3,073	1.9	-15.3	26	12.8	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
9	11	3,478	-18.2	-20.2	26	10.7	31	2.316	-5.7	-19.5	27	14.2	31	2.342	-3.6	-17.3	26	19.7	31	3,442	-11.7	-18.8	26	18.9	31	3,668	-1.4	-17.4	26	13.8	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
10	11	3,987	-19.3	-20.2	26	12.0	31	2.478	-9.0	-22.1	26	15.8	31	2.487	-7.1	-20.5	26	22.6	31	4,091	-15.0	-21.5	26	20.6	31	4,301	-5.2	-21.5	27	15.7	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
11	11	4,498	-20.2	-20.2	26	13.1	31	2.718	-12.8	-25.6	26	17.8	31	2.741	-9.9	-24.9	26	25.1	31	4,743	-19.1	-26.7	26	22.4	31	4,979	-9.8	-24.4	27	17.8	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
12	11	5,008	-21.6	-21.7	25	16.7	31	2.829	-17.4	-30.6	26	17.8	31	2.848	-1.8	-31.7	26	26.5	31	5,145	-23.6	-32.3	26	24.2	31	5,708	-14.4	-28.4	26	21.1	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
13	11	5,518	-21.6	-21.7	25	18.9	31	3.031	-2.8	-16.3	27	14.2	31	3.049	-7.7	-14.4	26	27.4	31	5,291	-9.4	-16.9	26	25.5	31	6,498	-19.5	-31.7	26	24.3	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
14	11	6,028	-21.6	-21.7	25	20.6	31	3.236	-5.7	-19.5	27	14.2	31	3.262	-3.6	-17.3	26	27.1	31	5,704	-34.6	-41.4	26	27.1	31	7,363	-25.5	-35.8	26	25.6	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
15	11	6,538	-21.6	-21.7	25	22.0	31	3.438	-9.0	-22.1	26	15.8	31	3.464	-7.1	-20.5	26	28.6	31	6,291	-15.0	-21.5	26	26.6	31	8,322	-32.4	-41.0	26	28.0	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
16	11	7,048	-21.6	-21.7	25	23.1	31	3.639	-12.8	-25.6	26	17.8	31	3.665	-9.9	-24.9	26	29.8	31	6,804	-19.1	-26.7	26	28.6	31	9,388	-40.5	-44.1	26	31.9	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
17	11	7,558	-21.6	-21.7	25	24.2	31	3.840	-17.4	-30.6	26	17.8	31	3.866	-1.8	-31.7	26	31.2	31	7,316	-23.6	-32.3	26	29.8	31	10,405	-49.8	-53.4	26	33.3	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
18	11	8,068	-21.6	-21.7	25	26.6	31	4.042	-2.8	-16.3	27	14.2	31	4.068	-7.7	-14.4	26	32.7	31	7,814	-9.4	-16.9	26	25.5	31	12,039	-57.6	-61.2	26	37.8	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
19	11	8,578	-21.6	-21.7	25	28.0	31	4.244	-5.7	-19.5	27	14.2	31	4.270	-3.6	-17.3	26	34.1	31	8,316	-34.6	-41.4	26	27.1	31	13,875	-61.3	-64.9	26	38.2	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
20	11	9,088	-21.6	-21.7	25	30.4	31	4.446	-9.0	-22.1	26	15.8	31	4.472	-7.1	-20.5	26	35.9	31	8,819	-15.0	-21.5	26	28.6	31	15,326	-63.2	-66.8	26	39.7	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
21	11	9,598	-21.6	-21.7	25	32.8	31	4.648	-12.8	-25.6	26	17.8	31	4.674	-9.9	-24.9	26	37.8	31	9,321	-19.1	-26.7	26	30.6	31	17,281	-69.3	-72.9	26	41.7	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
22	11	10,108	-21.6	-21.7	25	35.2	31	4.850	-17.4	-30.6	26	17.8	31	4.876	-1.8	-31.7	26	39.7	31	9,824	-23.6	-32.3	26	32.6	31	19,136	-77.6	-81.2	26	43.7	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
23	11	10,618	-21.6	-21.7	25	37.6	31	5.052	-2.8	-16.3	27	14.2	31	5.078	-7.7	-14.4	26	41.6	31	10,326	-9.4	-16.9	26	34.6	31	21,041	-85.8	-89.4	26	45.7	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
24	11	11,128	-21.6	-21.7	25	40.0	31	5.254	-5.7	-19.5	27	14.2	31	5.280	-3.6	-17.3	26	43.5	31	10,831	-34.6	-41.4	26	36.6	31	22,896	-93.9	-97.5	26	49.8	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
25	11	11,638	-21.6	-21.7	25	42.4	31	5.456	-9.0	-22.1	26	15.8	31	5.482	-7.1	-20.5	26	45.4	31	11,336	-15.0	-21.5	26	38.6	31	24,751	-100.0	-103.6	26	53.9	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
26	11	12,148	-21.6	-21.7	25	44.8	31	5.658	-12.8	-25.6	26	17.8	31	5.684	-9.9	-24.9	26	47.3	31	11,841	-19.1	-26.7	26	40.6	31	26,606	-106.1	-109.7	26	58.0	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
27	11	12,658	-21.6	-21.7	25	47.2	31	5.860	-17.4	-30.6	26	17.8	31	5.886	-1.8	-31.7	26	49.2	31	12,346	-23.6	-32.3	26	42.6	31	28,461	-112.2	-115.8	26	62.1	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
28	11	13,168	-21.6	-21.7	25	49.6	31	6.062	-2.8	-16.3	27	14.2	31	6.088	-7.7	-14.4	26	51.1	31	12,851	-9.4	-16.9	26	44.6	31	30,316	-118.3	-121.9	26	66.2	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
29	11	13,678	-21.6	-21.7	25	52.0	31	6.264	-5.7	-19.5	27	14.2	31	6.290	-3.6	-17.3	26	53.0	31	13,356	-34.6	-41.4	26	46.6	31	32,121	-124.4	-128.0	26	70.3	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
30	11	14,188	-21.6	-21.7	25	54.4	31	6.466	-9.0	-22.1	26	15.8	31	6.492	-7.1	-20.5	26	54.9	31	13,861	-15.0	-21.5	26	48.6	31	33,926	-130.6	-134.2	26	74.4	31	1.428	3.3	-2.7	22	2.2	29	1.498	5.6	-4.4	22	2.5					
31	11	14,698	-21.6	-21.7	25	56.8	31	6.668	-12.8	-25.6	26	17.8	31	6.694																																	

## Average monthly values

29. 06. 1974

FLINT, MI 937 Mc										GLASGOW, MI 938 Mc										GRAND DUNION, CO 939 Mc										GREAT FALLS, MI 940 Mc										GREEN HAV, MI 941 Mc									
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed mps		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed mps	
57C	31	236	-9.6	-12.6	25	1.8	1	696	-21.1	-24.0	32	1.3	31	1,472	-9.5	-12.9	12	1	1,111	-14.9	-20.4	20	9.1	31	210	-15.5	-14.1	31	1	211	-21.8	-24.8	27	5.6	31	534	-18.7	-18.7	32	9.4	31	534	-18.7	-18.7	32	9.4			
100	31	533	-10.3	-11.1	27	8.4	1	1,003	-14.8	-14.5	11	5.4	31	1,475	-9.7	-15.0	12	1.4	1,111	-11.4	-17.6	27	5.6	31	1,376	-14.7	-19.4	30	5.1	31	1,455	-14.5	-20.5	29	6.1	31	1,376	-14.7	-19.4	30	5.1	31	1,455	-14.5	-20.5	29	6.1		
900	31	949	-11.2	-13.3	28	6.1	31	1,003	-14.8	-14.5	11	5.4	31	1,475	-9.7	-15.0	12	1.4	1,111	-11.4	-17.6	27	5.6	31	1,376	-14.7	-19.4	30	5.1	31	1,455	-14.5	-20.5	29	6.1	31	1,376	-14.7	-19.4	30	5.1	31	1,455	-14.5	-20.5	29	6.1		
800	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	31	1,387	-11.6	-14.9	28	7.5	
700	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	31	1,852	-11.7	-16.5	27	9.1	
600	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	
500	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	31	2,475	-14.1	-19.3	27	11.4	
400	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	31	3,432	-16.7	-23.6	27	14.3	
300	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	31	4,031	-19.4	-26.5	26	17.1	
200	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	31	4,673	-22.8	-25.3	26	20.0	
100	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	31	5,366	-26.9	-29.5	26	23.1	
0	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	31	6,419	-31.7	-34.3	26	25.7	
57C	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	31	6,942	-37.6	-42.7	26	27.8	
100	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	31	7,854	-43.9	-48.5	26	28.1	
200	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	31	8,872	-49.7	-54.3	26	31.7	
300	31	10,047	-54.0	-58.6	25	31.9	31	9,981	-54.8	-59.4	25	31.9	31	10,023	-54.7	-59.3	25	28	31	10,051	-55.9	-60.5	25	31	27.7	31	9,981	-54.8	-59.4	25	31.9	31	9,981	-54.8	-59.4	25	31.9	31	9,981	-54.8	-59.4	25	31.9	31	9,981	-54.8	-59.4	25	31.9
400	31	11,479	-53.9	-58.5	25	31.8	31	11,419	-52.6	-57.2	25	31.8	31	11,460	-53.7	-58.3	25	28	31	11,477	-54.8	-59.4	25	31	31	11,479	-53.9	-58.5	25	31.8	31	11,479	-53.9	-58.5	25	31.8	31	11,479	-53.9	-58.5	25	31.8	31	11,479	-53.9	-58.5	25	31.8	
500	31	12,337	-53.8	-58.4	26	27.9	31	12,276	-52.2	-56.8	26	27.9	31	12,318	-53.3	-57.9	26	28	31	12,346	-54.3	-58.9	26	28	31	12,337	-53.8	-58.4	26	27.9	31	12,337	-53.8	-58.4	26	27.9	31	12,337	-53.8	-58.4	26	27.9	31	12,337	-53.8	-58.4	26	27.9	
600	31	13,326	-54.3	-58.9	26	26.2	31	13,276	-52.4	-57.0	26	26.2	31	13,318	-53.5	-58.1	26	28	31	13,346	-54.5	-59.1	26	28	31	13,326	-54.3	-58.9	26	26.2	31	13,326	-54.3	-58.9	26	26.2	31	13,326	-54.3	-58.9	26	26.2	31	13,326	-54.3	-58.9	26	26.2	
700	31	14,493	-55.4	-60.0	26	25.2	31	14,454	-53.1	-57.7	26	25.2	31	14,496	-54.1	-58.7	26	28	31	14,524	-55.3	-59.9	26	28	31	14,493	-55.4	-60.0	26	25.2	31	14,493	-55.4	-60.0	26	25.2	31	14,493	-55.4	-60.0	26	25.2	31	14,493	-55.4	-60.0	26	25.2	
800	31	15,910	-57.5	-62.1	26	22.2	31	15,868	-54.5	-59.1	26	22.2	31	15,910	-57.2	-61.8	26	28	31	15,938	-58.1	-62.7	26	28	31	15,910	-57.5	-62.1	26	22.2	31	15,910	-57.5	-62.1	26	22.2	31	15,910	-57.5	-62.1	26	22.2	31	15,910	-57.5	-62.1	26	22.2	
900	31	17,309	-56.7	-61.3	26	23.2	31	17,314	-55.4	-60.0	26	23.2	31	17,356	-56.2	-60.8	26	28	31	17,384	-56.5	-61.1	26	28	31	17,309	-56.7	-61.3	26	23.2	31	17,309	-56.7	-61.3	26	23.2	31	17,309	-56.7	-61.3	26	23.2	31	17,309	-56.7	-61.3	26	23.2	
1000	31	18,147	-56.8	-61.4	27	20.7	31	18,157	-55.6	-60.2	27	20.7	31	18,199	-56.2	-60.8	27	28	31	18,227	-56.5	-61.1	27	28	31	18,147	-56.8	-61.4	27	20.7	31	18,147	-56.8	-61.4	27	20.7	31	18,147	-56.8	-61.4	27	20.7	31	18,147	-56.8	-61.4	27	20.7	
1100	31	19,116	-59.0	-63.6	27	16.2	31	19,147	-56.1	-60.7	27	16.2	31	19,189	-56.2	-60.8	27	29	31	19,217	-56.5	-61.1	27	29	31	19,116	-59.0	-63.6	27	16.2	31	19,116	-59.0	-63.6	27	16.2	31	19,116	-59.0	-63.6	27	16.2	31	19,116	-59.0	-63.6	27	16.2	
1200	31	20,262	-59.3	-63.9	27	15.9	31	20,208	-56.1	-60.7	27	15.9	31	20,243	-56.2	-60.8	27	31	31	20,271	-56.6	-61.2	27	31	31	20,262	-59.3	-63.9	27	15.9	31	20,262	-59.3	-63.9	27	15.9	31	20,262	-59.3	-63.9	27	15.9	31	20,262	-59.3	-63.9	27	15.9	
1300	31	21,653	-58.9	-63.4	26	16.2	29	21,739	-56.4	-61.0	26	16.2	31	21,858	-57.5	-61.9	26	33	31	21,886	-57.4	-61.8	26	33	31	21,653	-58.9	-63.4	26	16.2	29	21,653	-58.9	-63.4	26	16.2	29	21,653	-58.9	-63.4	26	16.2	29	21,653	-58.9	-63.4	26	16.2	
1400	31	23,456	-57.8	-62.0	26	19.0	26	23,571	-57.1	-61.7	26	19.0	31	23,693	-56.4	-61.0	26	33	31	23,721	-56.7	-61.3	26	33	31	23,456	-57.8	-62.0	26	19.0	26	23,456	-57.8	-62.0	26	19.0	26	23,456	-57.8	-62.0	26	19.0	26	23,456	-57.8	-62.0	26	19.0	
1500	31	24,607	-57.0	-61.2	26	19.9	25	24,751	-57.1	-61.7	26	19.9	31	24,875	-55.8	-60.4	26	33	31	24,903	-55.7	-60.3	26	33	31	24,607	-57.0	-61.2	26	19.9	25	24,607	-57.0	-61.2	26	19.9	25	24,607	-57.0	-61.2	26	19.9	25	24,607	-57.0	-61.2	26	19.9	
1600	31	26,676	-51.9	-56.5	25	24.4	31	26,689	-54.3	-58.9	25	24.4	31	26,795	-54.3	-58.9	25	35	31	26,823	-54.2	-58.8	25	35	31	26,676	-51.9																						



## Average monthly values

JANUARY 1979

ST. W. ST. PA. 1017 MB										PINE, CALMON, AR 1002 MB										MCOP, CAROLINE IS. 1008 MB										NOTZBURG, AR 1006 MB										LAKE CHARLES, LA 1020 MB									
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind									
Surface	Height	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind	Obs.	Temp.	Dew	Wind								
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												
1017.0	1.0	10	16.4	15.4	10	2.1	15	-1.1	-5.4	11	3.7	31	30	27.2	24.0	105	3.0	10	5	-14.9	-16.6	11	3.8	31	5	4.3	-9	02	1.6	105	3.0	10	5	4.3	-9	02	1.6												

		LANE, WY 821 MI		9		LINCOLN, HI 101 MI		LITTLE ROCK, AR 1001 MI		LONGVIEW, TX 1007 MI		MCGRATH, AK 998 MI																		
800	31	1,497	-19.6	-22.5	22	9	31	36	20.4	16.8	05	3.8	31	79	-4.1	-6.8	34	9	31	124	9	-2.3	36	8	31	103	-18.2	-22.3	10	2
700	31					31	152	20.4	15.5	05	4.2	17	276	-5.4	-9.0	34	9	24	210	-1.1	-6.0	01	6	16	18	-6.7	-18.7	06	1.3	
600	31					31	693	16.8	13.5	06	4.8	17	581	-3.2	-7.6	29	3	9	590	1.1	-4.6	25	1	7	31	480	-9.7	-12.5	10	4.6
500	31					31	1,054	10	10.9	05	5	31	1,010	-1.1	-7.7	02	6	1	1,072	2	-6.4	27	9	3	9	903	-10.5	-13.5	20	10
400	31					31	1,532	10.5	6	07	4.9	31	1,445	-9.7	-10.6	28	8	3	1,490	2.3	-7.6	28	9	4	31	1,353	-5.8	-11.9	16	4.9
300	31	1,940	-12.1	-17.1	24	9	2,035	8.6	-2.2	06	4.2	31	1,947	-2.4	-12.1	27	11	3	1,978	3	-9.6	28	11	31	1,826	-8.2	-15.0	18	4.9	
200	31	2,435	-11.2	-17.9	29	1.7	2,538	7.3	-9.2	04	2.3	31	2,458	-4.0	-15.7	27	13	3	2,495	-1.6	-12.1	27	13	31	2,324	-11.2	-17.9	19	6.4	
100	31	2,964	-12.5	-20.7	29	6.4	3,164	5.1	-13.5	33	1.4	31	3,000	-6.6	-19.7	27	15	9	3,042	-3.6	-14.6	27	15	31	2,851	-14.4	-22.4	19	7.2	
0	31	3,527	-15.3	-23.4	29	9.9	3,736	7.2	-17.0	30	3.3	31	3,576	-9.9	-22.2	27	16	9	3,625	-6.5	-18.2	26	17	31	3,409	-22.2	-25.2	20	10	
800	31	-41.24	-18.7	-24.1	31	12.9	4,207	9.9	-20.7	29	7.1	31	4,111	-25.1	-25.5	27	22	1	4,201	-23.6	-26.9	26	20	31	4,002	-22.2	-29.9	20	8.7	
700	31	4,771	-22.8	-30.5	30	14.9	5,064	-6.2	-24.7	29	7.1	31	4,850	-16.3	-26.9	27	25	6	4,914	-13.5	-26.7	26	25	31	4,636	-26.5	-34.9	19	9.6	
600	31	5,488	-27.6	-35.7	30	17.1	5,802	-11.4	-28.9	29	9.7	31	5,562	-20.6	-32.0	26	28	8	5,633	-17.9	-31.9	26	29	31	5,318	-31.1	-37.8	20	9.5	
500	31	6,213	-32.9	-40.6	30	19.6	6,602	-16.6	-33.9	29	12.4	31	6,334	-25.5	-36.3	26	31	7	6,414	-22.8	-36.6	26	32	31	6,057	-36.1	-40.0	21	9.5	
400	31	7,034	-38.9	-44.2	30	21.8	7,476	-22.6	-38.5	28	16.1	31	7,178	-31.7	-41.8	26	34	9	7,267	-28.8	-41.2	26	35	31	6,885	-42.1	-45.0	21	10.7	
300	31	7,940	-44.2	-50.1	30	24.1	8,408	-26.1	-43.5	28	20.7	31	8,112	-31.7	-47.3	26	37	3	8,211	-28.3	-43.9	26	38	31	7,760	-46.1	-50.1	21	10.9	
200	31	8,496	-50.3		29	29.2	9,536	-34.6	-40.5	29	25.4	31	9,155	-44.8		26	40	9	9,266	-43.1	-46.5	26	39	31	8,764	-52.8		22	10.7	
100	31	10,134	-55.0		29	31.1	10,790	-42.1	-53.1	28	34.1	31	10,355	-51.7		26	42	4	10,472	-51.3		26	40	31	9,934	-54.7		23	10.8	
0	31	11,553	-55.9		29	27.7	12,271	-51.0		28	35.1	31	11,787	-56.2		26	45	6	11,903	-56.9		26	44	9	11,367	-52.1		22	10.6	
800	31	12,405	-55.0		28	26.6	13,131	-56.5		28	34.3	31	12,633	-57.7		26	42	7	12,747	-58.4		26	42	5	12,234	-50.9		23	10.6	
700	31	13,393	-54.2		29	23.8	14,099	-62.7		29	32.3	31	13,606	-63.1		26	38	3	13,713	-60.1		26	39	31	13,200	-51.1		23	10.6	
600	31	14,561	-54.6		29	27.1	15,201	-60.1		29	37.7	31	14,767	-60.3		26	34	7	14,883	-62.3		26	36	31	14,360	-50.3		23	11.0	
500	31	15,985	-56.2		29	16.0	16,511	-75.8		29	23.0	31	16,128	-62.6		27	28	0	16,211	-64.7		27	28	31	15,885	-50.7		20	11.9	
400	31	17,397	-57.8		29	14.5	17,795	-77.3		29	11.4	30	17,500	-63.4		26	23	0	17,569	-65.7		26	27	31	17,337	-51.5		25	12.3	
300	31	18,240	-57.5		29	13.4	18,585	-75.2		29	6.8	30	18,320	-63.2		26	20	3	18,380	-65.5		26	18	31	18,204	-51.5		25	12.9	
200	31	19,120	-58.2		29	13.1	19,465	-70.1		30	2	30	19,217	-62.0		27	17	0	19,322	-63.2		27	17	31	19,204	-52.0		26	14.5	
100	31	20,314	-58.4		30	11.6	20,659	-67.4		30	0.2	30	20,407	-64.2		27	14	2	20,462	-64.2		27	14	31	20,286	-52.5		26	14.5	
0	31	21,743	-57.4		30	10.3	22,014	-59.9		07	2.8	30	21,797	-58.8		27	10	9	21,837	-59.1		27	10	31	21,654	-51.9		27	17.4	
800	31	23,582	-57.9		30	10.3	23,757	-56.0		08	4.1	26	23,609	-55.4		27	9	6	23,653	-55.8		26	9	24	23,714	-53.0		27	19.6	
700	31	24,729	-57.7		30	11.4	24,949	-53.8		09	4.6	24	24,778	-53.3		27	8	4	24,814	-54.5		26	8	27	24,920	-52.7		28	19.8	
600	31	26,149	-56.1		31	11.0	26,359	-57.2		07	1.3	26	26,219	-51.6		27	10	6	26,268	-51.5		26	6	23	26,469	-49.7		27	18.8	
500	31	27,024	-55.3		32	11.4	27,250	-54.1		25	1.3	26	28,112	-48.4		26	13	9	28,153	-48.5		26	9	19	28,388	-46.6		26	12.9	
400	31	30,689	-48.5		18	10	30,699	-46.0		24	4.6	6	30,769	-46.7		21	13	0	30,845	-46.6		24	16	6	31,344	-46.1		25	10.0	
300	31				10	33	32.2	-44.8																5	33,663	-43.4				

MAHON, MARSHALL IS.										MEADOW, OR										MERIDA, MEXICO										MIDLAND, TX										MONTERREY, MEXICO									
101G Mb										971 Mb										101S Mb										917 Mb										9.67 Mb									
50C	31	5	28.4	24.0	07	5.7	31	-0.1	-1.0	-3.2	07	+0	31	11	19.0	17.6	06	+8	31	874	-1.5	-6.3	08	+6	30	423	7.5	3.3	34	1.2																			
100C	31	89	26.8	22.6	07	6.7	31	5.76	1.6	-2.5	07	+2	31	582	18.5	15.6	09	4.9	31	593	7.8	3.0	01	1.1	30	1,000	7.3	1.6	00	+6																			
100C	31	84	21.5	19.0	08	9.7	31	1,010	1.4	-1.9	15	+2	31	139	20.3	17.6	07	3.1	31	1,020	-1	-5.5	19	+5	30	1,000	7.3	1.6	00	+6																			
100C	31	140	17.0	17.0	08	9.7	31	1,010	1.4	-1.9	15	+2	31	139	20.3	17.6	07	3.1	31	1,020	-1	-5.5	19	+5	30	1,000	7.3	1.6	00	+6																			
100C	31	150	16.0	12.9	09	6.8	31	1,870	7	-8.9	17	+2	31	1,531	16.4	8.1	15	1.5	31	1,460	-2.4	-5.7	26	+4	30	1,011	7.3	1.6	00	+6																			
100C	31	2,675	15.4	9.9	10	4.1	31	1,954	-2.1	-11.7	22	+2	31	2,041	12.5	3.0	21	2.6	31	1,971	2.6	-9.8	27	7.9	30	2,012	9.0	-4.6	25	3.5																			
75D	31	2,572	14.0	3.0	11	2.6	31	2,865	-8.5	-13.6	26	3.5	31	2,581	10.3	-1.4	22	3.1	31	2,492	-7	-13.8	27	10.3	30	2,545	7.3	-8.5	26	7.2																			
70C	31	3,152	11.0	-6	12	2.6	31	3,004	-7.1	-16.7	28	4.8	31	3,153	7.6	-6.1	23	3.8	31	3,043	-2.2	-15.5	27	12.6	30	3,110	4.5	-13.0	27	11.2																			
65D	31	3,767	7.7	-4.5	12	2.6	30	3,578	-10.7	-20.6	29	6.2	31	3,760	4.1	-10.4	24	5.4	31	3,628	-5.2	-18.5	27	14.5	30	3,710	1.2	-15.2	27	11.6																			
60D	31	4,924	4.5	-9.9	09	4.1	30	4,707	-10.7	-22.9	30	7.4	31	4,907	-7	-15.4	24	6.9	31	4,252	-8.9	-23.0	27	17.4	30	4,350	-2.4	-19.5	27	13.7																			
55D	31	5,127	-14.1	07	7	3.6	30	4,842	-10.1	-21.8	30	8.4	31	5,102	-7	-26.0	25	18.5	31	4,721	-2.6	-28.8	27	21.0	30	4,781	-2.3	-23.1	27	35.9																			
50C	31	5,884	-4.0	-17.8	08	7.7	31	5,645	-21.9	-33.1	30	9.1	31	5,849	-7.7	-25.7	25	10.0	31	5,641	-17.9	-30.8	27	23.7	30	5,773	-11.5	-26.5	26	19.4																			
45C	31	6,711	-8.5	-24.0	08	9.7	31	6,306	-29.2	-37.4	30	11.2	31	6,659	-13.4	-30.6	25	11.6	31	6,421	-22.8	-35.1	27	27.1	29	6,570	-17.1	-30.2	26	22.4																			
40C	31	7,615	-14.0	-29.5	08	9.7	31	7,138	-31.0	-41.2	30	13.2	31	7,545	-19.8	-37.2	26	14.0	31	7,275	-28.6	-39.8	27	30.4	29	7,443	-23.2	-34.4	26	25.0																			
35C	31	8,618	-20.7	-35.6	08	7.2	30	8,059	-41.0	-42.1	30	14.5	31	8,525	-27.3	-43.6	26	15.2	31	8,222	-35.1	-45.4	27	34.7	29	8,409	-30.5	-41.6	26	28.2																			
30C	31	9,738	-26.5	-43.1	08	7.2	30	9,082	-47.0	-48.1	30	16.6	31	9,612	-36.1	-50.8	26	15.9	31	9,278	-42.4	-50.1	27	40.7	29	9,485	-38.7	-47.3	26	32.8																			
25C	31	11,017	-36.9	-51.1	12	5.8	30	10,258	-66.1	-67.2	30	17.6	31	10,786	-55.1	-68.3	26	18.5	31	10,312	-52.9	-65.6	27	40.1	29	10,517	-40.1	-48.7	26	35.9																			
20C	31	12,508	-51.1	-61	15	6.8	29	11,677	-57.8	-58.9	29	18.5	30	12,297	-56.9	-59.3	26	20.5	31	11,918	-56.5	-59.7	27	40.0	29	12,187	-57.7	-58.7	26	37.5																			
15C	31	13,336	-58.1	-64	14	6.7	28	12,521	-59.4	-60.6	29	17.4	30	13,134	-61.3	-64.3	26	22.4	31	12,761	-58.7	-61.7	27	38.5	29	12,982	-61.6	-62.7	26	35.7																			
10C	31	14,316	-86.2	-72	12	5.9	28	13,001	-54.0	-55.2	29	16.0	30	14,082	-61.3	-64.3	25	22.3	30	13,729	-58.0	-61.0	27	36.2	29	13,930	-64.6	-65.7	26	31.9																			
5C	31	15,060	-74.4	-68	7.1	28	14,461	-56.4	-57.6	-58.7	29	13.7	30	15,184	-69.4	-72.4	25	21.9	30	14,862	-61.9	-64.9	27	32.4	29	15,033	-68.0	-69.1	26	30.5																			
0C	31	16,044	-81.1	-76	10.5	28	16,076	-55.7	-56.9	-58.0	29	11.0	30	16,495	-75.7	-78.7	25	19.3	30	16,231	-64.9	-67.9	27	25.8	28	16,359	-72.1	-73.2	26	24.6																			
0C	31	17,910	-65.0	-68	5.7	28	17,881	-58.0	-59.1	-60.2	30	8.6	28	17,783	-75.7	-78.7	25	13.9	29	17,587	-66.3	-69.3	27	19.4	28	17,670	-71.7	-72.8	26	16.1																			
0C	31	18,676	-74.5	-69	4.9	28	18,323	-58.0	-59.1	-60.2	31	7.1	28	18,552	-74.2	-77.2	25	8.9	28	18,397	-65.4	-68.4	27	15.0	22	18,468	-69.3	-70.4	26	11.7																			
0C	31	19,185	-8.8	-67	7.1	28	19,296	-57.7	-58.8	-59.9	31	5.7	26	19,459	-70.2	-73.2	25	3.8	28	19,340	-63.4	-66.4	27	13.8	20	19,396	-65.9	-67.0	26	6.7																			
0C	31	20,448	-63.6	-67	9.6	27	20,453	-57.7	-58.8	-59.9	31	5.8	26	20,558	-64.8	-67.8	25	2.8	28	20,467	-61.2	-64.2	27	12.8	20	20,511	-62.7	-63.8	26	3.2																			
0C	31	22,370	-5.6	-67	6.0	27	21,862	-57.5	-58.6	-59.7	31	4.5	26	21,936	-59.0	-62.0	25	2.1	28	21,858	-59.4	-62.4	27	10.3	20	21,897	-60.0	-61.1	26	1.7																			
0C	31	23,185	-5.6	-67	2.8	27	23,700	-57.5	-58.6	-59.7	31	4.5	26	23,760	-59.4	-62.4	25	2.1	28	23,672	-55.9	-58.9	27	7.0	16	23,733	-52.2	-53.3	26	1.8																			
0C	31	23,470	-53.9	-69	44.7	28	24,459	-55.6	-56.7	-57.8	05	10.1	24	24,937	-52.2	-55.2	05	6.5	26	24,866	-52.2	-55.2	05	4.3	13	24,903	-54.7	-55.8	04	2.1																			
0C	31	24,488	-50.3	-69	21.2	28	24,378	-53.8	-54.9	-56.0	06	11.6	22	26,471	-49.0	-52.0	09	6.2	26	26,206	-52.0	-55.0	29	4.4	15	26,373	-49.7	-50.8	09	2.8																			
0C	31	26,197	-45.5	-69	23.0	28	26,200	-52.3	-53.4	-54.5	06	12.6	20	28,249	-46.2	-49.2	10	11.6	24	28,157	-49.9	-52.9	29	3.4	12	28,270	-46.9	-48.0	10	6.5																			
0C	31	28,197	-45.5	-69	10	31	31,053	-47.0	-48.1	-49.2	06	12.6	20	31,025	-46.2	-49.2	23	6.6	5	31,003	-45.4	-48.4	23	6.4	5	31,003	-46.3	-47.4	23	6.4																			

## Average monthly values

244, 245 } + 7 +

[illegible]

OMAHA, NE 972 MB										PAGO PAGO, AMERICAN SAMOA 1007 MB										PEORIA, IL 992 MB										PITTSBURGH, PA 973 MB										PONAPE, CAROLINE IS. 1208 MB									
5FC	31	403	-14.9	-18.0	32	2.2	31	5	28.9	24.6	09	1.7	31	200	-13.4	-17.0	31	1.7	31	359	-6.3	-9.3	25	2.3	31	39	28.1	24.0	06	3.0																			
1000							31	65	27.4	23.3	09	1.6	31	249	-19.6	-22.8	30	2.5						31	78	27.3	23.0	06	3.0																				
950	31	573	-13.5	-15.6	33	4.1	31	519	23.7	21.2	08	1.0	31	557	-11.5	-14.2	31	5.4	30	549	-7.1	-8.8	24	4.0	31	531	23.5	14.4	07	3.1																			
900	31	998	-12.0	-16.1	32	31	991	20.6	18.2	09	4.3	31	973	-9.9	-15.2	30	6.6	31	962	-7.8	-9.4	26	7.6	31	1.003	20.3	17.0	07	3.1																				
850	31	17.426	-11.7	-17.5	31	8.5	31	1.480	15.1	15.5	3	31	1.415	-16.0	-25	6.4	31	1.400	-17.0	-10.6	27	18.0	31	1.16	18.0	16.0	07	6.0																					
800	31	1.693	-10.3	-13.6	30	9.2	31	2.003	15.5	11.9	23	6	31	1.884	-9.9	-17.3	29	10.0	31	1.878	-8.3	-12.1	27	12.1	31	2.014	16.3	8.1	08	3.0																			
750	31	2.389	-11.3	-18.4	30	10.6	31	2.549	13.1	6.9	24	1.5	31	2.362	-10.2	-19.3	28	12.2	31	2.379	-9.3	-14.5	27	14.1	31	2.562	14.3	1.7	09	3.0																			
700	31	2.917	-13.0	-19.1	29	12.6	31	3.128	10.4	2.6	23	1.9	31	2.912	-12.1	-21.6	27	14.3	31	2.911	-10.9	-17.1	27	16.2	31	3.142	11.4	-3.0	09	3.0																			
650	31	3.479	-15.5	-22.1	29	14.5	31	3.742	7.6	-1.5	23	1.9	31	3.477	-14.4	-24.2	27	16.1	31	3.478	-13.3	-21.6	27	18.5	31	3.757	7.9	-5.9	08	3.0																			
600	31	4.007	-18.4	-25.2	28	15.5	31	4.349	4.1	-0.4	23	1.8	31	4.080	-17.6	-26.8	27	18.0	31	4.084	-16.3	-25.5	27	21.0	31	4.413	4.5	-13.6	08	3.0																			
550	31	4.725	-20.1	-29.4	28	16.5	31	5.107	1.9	-1.0	23	1.7	31	4.810	-20.0	-29.2	26	19.0	31	4.814	-18.0	-28.2	27	23.0	31	5.136	1.0	-16.0	09	3.0																			
500	31	5.420	-26.3	-34.5	28	19.7	31	5.862	-3.5	-14.7	22	1.7	31	5.422	-26.2	-34.6	27	21.9	30	5.440	-24.1	-33.4	27	26.5	31	5.875	-4.2	-21.0	08	3.0																			
450	31	6.174	-31.5	-39.9	28	20.6	31	6.688	-8.1	-20.3	20	1.6	31	6.176	-31.0	-39.3	26	24.3	30	6.202	-29.0	-37.3	27	27.9	31	6.697	-4.5	-25.4	09	3.0																			
400	31	6.997	-37.8	-44.4	28	22.6	31	7.594	-13.9	-26.5	18	1.2	31	7.002	-36.7	-43.3	26	27.5	30	7.035	-34.6	-42.5	27	30.8	31	7.599	-14.5	-30.3	08	3.0																			
350	31	7.908	-44.0		28	25.3	31	8.598	-20.6	-32.6	15	31	7.918	-42.6		-44.5	26	31.3	30	7.958	-40.7		-44.3	26	33.1	31	8.601	-21.0	-36.5	08	3.0																		
300	31	9.26			27	28.3	31	10.096	-28.7	-41.5	12	31	8.722	-48.8			26	34.5	31	8.734	-48.0			26	36.0	31	9.407	-21.0	-36.5	09	3.0																		
250	31	10.107	-51.6		27	31.3	31	10.996	-37.9	-50.0	7	4.0	31	10.124	-53.9		26	37.9	30	10.162	-52.4			26	39.2	31	10.994	-39.9	-50.1	12	3.0																		
200	31	11.538	-54.0		27	31.0	31	12.847	-51.1		26	4.7	31	11.552	-54.4		26	35.5	30	11.614	-52.2			26	36.0	31	12.481	-51.7		11	3.0																		
175	31	12.396	-53.6		27	28.0	30	13.345	-58.2		24	5.0	31	12.407	-54.7		26	34.3	30	12.465	-55.7			26	37.6	31	13.334	-58.7		13	10.0																		
150	31	13.387	-53.6		27	26.9	30	14.299	-55.7		21	5.3	31	13.393	-55.7		26	31.5	30	13.447	-56.7			26	33.5	30	14.281	-58.8		11	10.0																		
125	31	14.557	-54.9		27	24.6	30	15.686	-73.4		18	3.2	31	14.557	-65.8		27	29.4	29	14.603	-57.3			27	30.9	30	15.361	-75.0		11	13.5																		
100	31	15.977	-56.5		27	21.4	30	16.665	-57.1		14	4.1	31	15.969	-57.1		27	25.1	29	16.005	-56.9			27	28.0	30	16.407	-74.7		09	14.2																		
75	30	17.189	-57.6		27	19.6	30	17.919	-80.3		11	3.1	31	17.371	-59.3		27	20.6	27	17.405	-59.9			27	20.6	30	17.878	-79.9		09	14.2																		
60	31	18.230	-58.4		28	17.1	30	18.685	-74.6		10	8.6	31	18.207	-59.8		27	19.3	26	18.238	-60.0			27	20.7	30	18.647	-73.2		27	1.7																		
45	30	19.199	-58.8		28	15.6	29	19.593	-69.6		09	10.2	29	19.169	-59.1		27	19.1	26	19.200	-60.4			27	18.0	30	19.560	-68.7		27	6.5																		
30	30	20.345	-58.8		28	14.6	29	20.692	-65.3		09	12.0	29	20.312	-59.2		27	17.4	24	20.344	-59.9			27	17.5	30	20.663	-64.4		27	8.7																		
15	40	29.177	-58.6		28	13.1	29	22.069	-59.8		08	14.3	27	21.712	-58.2		27	16.4	21	21.737	-58.0			27	15.5	29	22.041	-60.0		27	7.2																		
0	31	29.563	-58.6		27	18.6	29	23.163	-57.5		07	20.1	23	23.533	-57.5		27	20.1	23	23.560	-55.0			27	20.1	29	23.850	-60.0		27	7.2																		
25	27	24.721	-56.7		27	20.3	27	24.063	-52.2		07	20.7	20	23.533	-56.5		27	21.0	18	24.765	-55.5			28	15.3	28	24.013	-56.7		09	17.1																		
20	26	15.53	-53.7		27	20.2	28	26.251	-48.6		09	24.9	15	26.132	-54.7		27	24.8	14	26.208	-51.4			29	19.3	28	26.453	-50.9		09	22.8																		
15	23	28.055	-50.3		27	19.0	25	28.242	-44.5		09	28.9	11	28.042	-52.1						-88.8						25.346	-46.7		09	24.7																		
10	17	30.741	-47.8		29	19.5	16	31.159	-40.5		09	32.3															18	31.070	-40.9		09	22.8																	

PORTLAND, ME 1010 ME										QUILLVAY, WA 1012 ME										RAPID CITY, SD 906 ME										ST CLOUD, MN 983 ME										ST PAUL ISLAND, AK 992 ME									
SFC	31	20	-6.6	-9.4	31	1.8	58	.3	-2.2	07	1.4	31	966	-14.9	-19.6	35	3.5	31	316	-21.6	-24.1	31	1.4	31	10	1.5	-1.7	14	1.1																				
1000	27	161	-7.9	-12.7	27	2.4	30	154	1.6	-2.1	09	1.7											13	60	2.2	-1	14	5.0																					
950	31	497	-6.1	-9.9	31	3.4	31	564	1.6	-4.6	14	1.8											4.3	31	365	-7	-2.6	15	8.0																				
900	31	920	-7.0	-11.0	30	3.8	31	999	-2.2	-7.3	19	2.3	31	1040	-15.3	-20.2	34	3.6	31	969	-16.2	-19.2	32	6.0	31	795	-3	-5.9	16	6.7																			
850	31	1384	-5.1	-12.6	28	3.1	31	1555	-1.3	-11.2	23	2.4	31	1408	-11.1	-16.6	32	7.2	31	1501	-10.5	-20.1	31	8.0		12.64	-1	-11.2	16	7.0																			
800	31	1838	-8.1	-14.9	27	7.1	31	1935	-8.3	-14.5	26	2.6	31	1913	-11.1	-18.2	32	10.2	31	1858	-18.0	-22.0	31	8.0	31	1717	-8.6	-15.4	16	7.2																			
750	31	2338	-9.8	-16.8	27	9.2	31	2441	-7.0	-19.0	28	3.2	31	2406	-13.3	-20.1	12	11.7	31	2346	-16.2	-23.6	31	9.0	31	2215	-11.6	-19.8	16	8.4																			
700	31	2869	-11.7	-19.9	26	12.0	31	2976	-9.8	-22.4	29	4.8	31	2970	-14.9	-22.1	31	12.4	31	2862	-17.9	-25.2	10	10.2	31	2740	-14.8	-23.5	17	9.1																			
650	31	3345	-14.2	-21.6	26	13.9	31	3545	-12.9	-25.1	29	5.7	31	3487	-18.0	-24.3	30	12.1	31	3414	-20.2	-27.6	29	11.5	31	3298	-18.8	-26.1	17	9.8																			
600	31	4038	-17.5	-25.6	26	15.4	31	4151	-16.7	-27.7	30	7.4	31	4082	-20.8	-27.7	30	13.4	31	4004	-22.7	-31.2	29	13.2	31	3892	-22.4	-24.6	17	10.4																			
550	31	4731	-20.3	-29.6	26	17.1	31	4849	-20.9	-29.5	33	9.1	31	4721	-24.8	-31.6	29	14.8	31	4632	-26.1	-35.1	29	15.0	31	4513	-26.7	-24.9	19	11.1																			
500	31	5382	-25.3	-38.1	26	18.6	31	5495	-24.9	-33.9	30	10.5	31	5407	-28.5	-36.6	29	16.3	31	5322	-31.3	-38.5	28	14.5	31	5204	-30.7	-39.5	18	10.8																			
450	31	6129	-31.1	-39.5	26	20.2	31	6252	-31.1	-38.6	30	11.8	31	6152	-34.6	-41.9	29	17.7	31	6054	-35.2	-44.1	28	18.2	31	5941	-36.7	-44.1	19	13.2																			
400	31	6954	-37.1	-43.1	26	22.2	31	7076	-37.5	-44.2	29	13.4	31	6965	-40.2	-45.7	29	20.1	31	6875	-40.8	-44.6	28	20.7	31	6747	-42.2	-44.9	19	13.4																			
350	31	7888	-43.1	-45.2	26	22.6	31	7988	-44.0		29	14.8	31	7867	-45.9		28	22.3	31	7775	-46.7		28	22.4	31	7642	-47.1		19	13.7																			
300	31	8891	-48.7		28	23.8	30	9008	-51.0		29	17.4	31	8877	-51.4		28	24.9	31	8782	-52.1		27	23.6	31	8645	-51.1		19	13.4																			
250	31	10073	-52.7		26	24.6	30	10177	-57.0		29	19.6	31	10051	-57.4		27	24.0	31	9933	-55.0		27	24.0	31	9796	-54.1		19	13.7																			
200	31	11509	-55.5		26	26.1	30	11594	-57.2		29	19.1	31	11549	-57.9		27	24.9	31	11330	-53.1		28	24.0	31	11240	-52.3		19	13.8																			
175	30	12359	-55.7		27	26.6	29	12336	-56.2		29	16.8	31	12338	-53.1		24	21.6	31	12244	-52.8		27	21.9	31	12159	-48.1		20	14.7																			
150	30	13340	-55.6		26	22.5	26	13425	-55.2		29	14.4	31	13331	-53.4		28	20.6	31	13239	-53.1		28	20.2	31	13177	-49.7		20	13.7																			
125	29	14490	-57.0		26	23.5	28	14458	-55.2		30	13.6	31	14502	-56.4		29	20.0	31	14412	-54.4		28	21.5	31	14341	-47.7		21	13.8																			
100	29	15460	-58.3		26	20.6	28	16012	-55.5		30	11.0	31	15927	-56.9		29	18.6	31	15836	-56.8		28	21.4	30	15654	-49.7		21	13.5																			
75	28	17301	-58.3		26	17.2	28	17431	-56.4		30	8.9	31	17340	-56.5		29	15.5	31	17251	-56.7		28	20.4	30	17130	-47.7		22	13.6																			
50	27	18137	-59.1		26	15.3	28	18280	-56.3		32	8.7	31	18191	-56.9		29	15.2	31	18105	-57.2		28	18.2	30	18028	-47.8		22	13.5																			
25	27	19104	-59.6		26	14.4	28	19260	-56.0		33	8.0	30	19168	-57.6		29	13.2	30	19070	-58.1		28	20.4	30	19026	-47.8		23	13.2																			
0	26	20245	-59.6		27	13.4	26	20214	-56.3		34	8.1	30	20319	-57.6		30	12.2	30	20279	-58.1		29	17.6	29	20242	-48.2		23	13.0																			
	26	21684	-56.8		27	11.6	23	21859	-55.3		35	7.8	30	21727	-57.9		30	11.1	30	21623	-58.6		29	18.4	29	21601	-48.6		24	13.4																			
	25	23362	-57.8		27	17.6	19	23704	-56.6		36	10.1	27	23538	-58.4		30	12.6	27	23450	-58.6		30	18.6	28	23186	-50.2		25	14.7																			
	24	24267	-57.8		28	23.5	17	24833	-56.8		35	10.8	28	24670	-58.6		35	15.5	26	24450	-58.6		30	18.1	28	24000	-50.2		25	14.7																			
	22	26265	-55.8		26	22.6	15	26297	-56.6		36	13.1	27	26181	-57.7		29	17.5	27	26088	-56.6		30	17.2	28	26000	-48.2		26	14.6																			
	15	27893	-52.4		26	12.6	7	28028	-48.5		37	21	27914	-55.8		29	19.5	17	27916	-53.1		30	18.2	23	28278	-53.1		27	16.8																				
	10										38	13	30885	-58.6		29	14.1	10	30766	-47.9		28	18	31309	-48.6			28	3.4																				



## Average monthly values

JANUARY 1979

- 20 -

## Average monthly values

JANUARY 1979

ТАЖИКАТ, АН  
1013 НЭ

YAF, CAROLINE IS.  
1010 MB



# SOLAR RADIATION INTENSITIES

Totalled in langleys per minute on a surface normal to the direction of the sun.

JANUARY 1979

Sun's zenith distance										Sun's zenith distance									
A M					P M					A M					P M				
78 7'	75 7'	70 7'	60 0'	*	60 0'	70 7'	75 7'	78 7'		78 7'	75 7'	70 7'	60 0'	*	60 0'	70 7'	75 7'	78 7'	
MALNA LOA OBSERVATORY HI																			
Air mass										Air mass									
1	1.05	2.01	1.31	*	1.34	2.01	2.67	3.34											
17	1.37	1.47	1.59	---	---	---	---	---											
18	1.41	1.49	1.58	1.66	1.53	1.40	1.26	1.16											
19	1.38	1.45	1.56	1.63	1.53	1.41	1.31	1.21											
20	1.34	1.41	1.55	1.65	---	---	---	---											
21	1.30	1.43	1.54	1.63	1.50	1.40	1.30	1.22											
22	1.42	1.46	1.49	1.59	1.69	1.59	1.47	1.38	1.29										
27	1.48	1.31	1.42	1.55	1.67	---	---	---											
31	1.20	1.35	1.43	1.53	---	---	---	---											
Aver-																			
ages	1.29	1.36	1.44	1.56	1.66	1.64	1.42	1.31	1.22										

## NET RADIATION

Net radiation in langleys per day (8 a.m. to 8 a.m.) at Palmer, Alaska

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys . .	-1	-76	-1	-67	-73	-79	-74	-36	-9	-6	-57	-45	-49	-51	-63	-45	-48	-44	-58	-54	-57	-50	-47	-47	-33	-64	-25	-73	-64	-62	-59	-53

# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- Ø Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- ± No Storm Data Report received for this State.
- ◇ Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( ) Clouds Present	DM Moderate Dust	HM Moderate Haze	KS Slight Smoke
* Values corresponding to true solar noon	DS Slight Dust	HS Slight Haze	M Moderate Haze-indeter-
BD Blowing Dust	F Fog	I Intense Haze-indeterminable	minable
BN Blowing Sand	GF Ground Fog	K Smoke	N Sand
D Dust	H Haze	KI Intense Smoke	S Slight Haze-indeter-
DI Intense Dust	HI Intense Haze	KM Moderate Smoke	minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



# DESCRIPTION OF CHARTS

CHART I. A. NORMAL DAILY AVERAGE TEMPERATURE ( $^{\circ}\text{F}$ . 1941-70) FOR MONTH. B. TEMPERATURE DEPARTURE FROM 30-YEAR MEAN ( $^{\circ}\text{F}$ . 1941-70) FOR MONTH. Chart I-A is reproduced from monthly normals maps prepared at the National Climatic Center. Chart I-B is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin," a publication of Environmental Data Service.

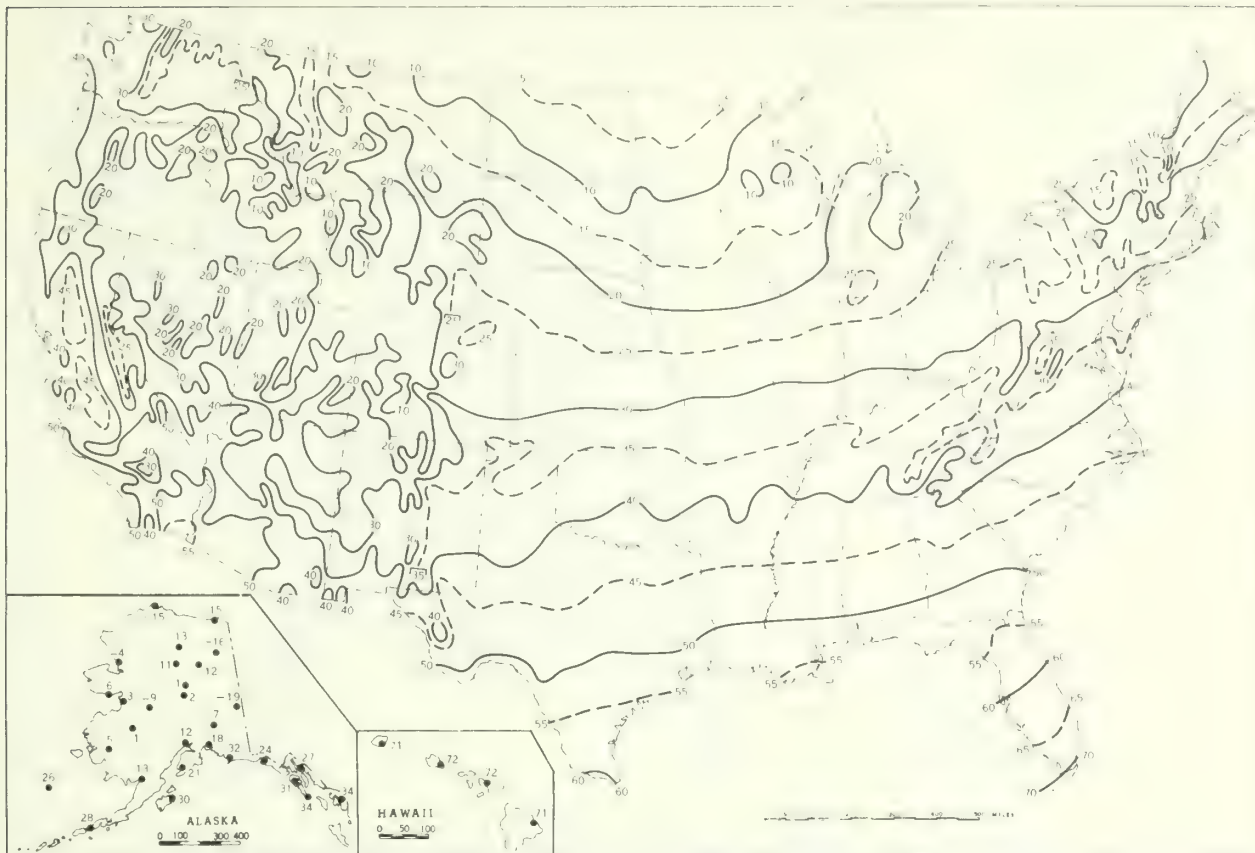
CHART II. A. TOTAL PRECIPITATION. Chart II. A. is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin."

CHART II. B. PERCENTAGE OF NORMAL PRECIPITATION. Chart II. B. is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin."

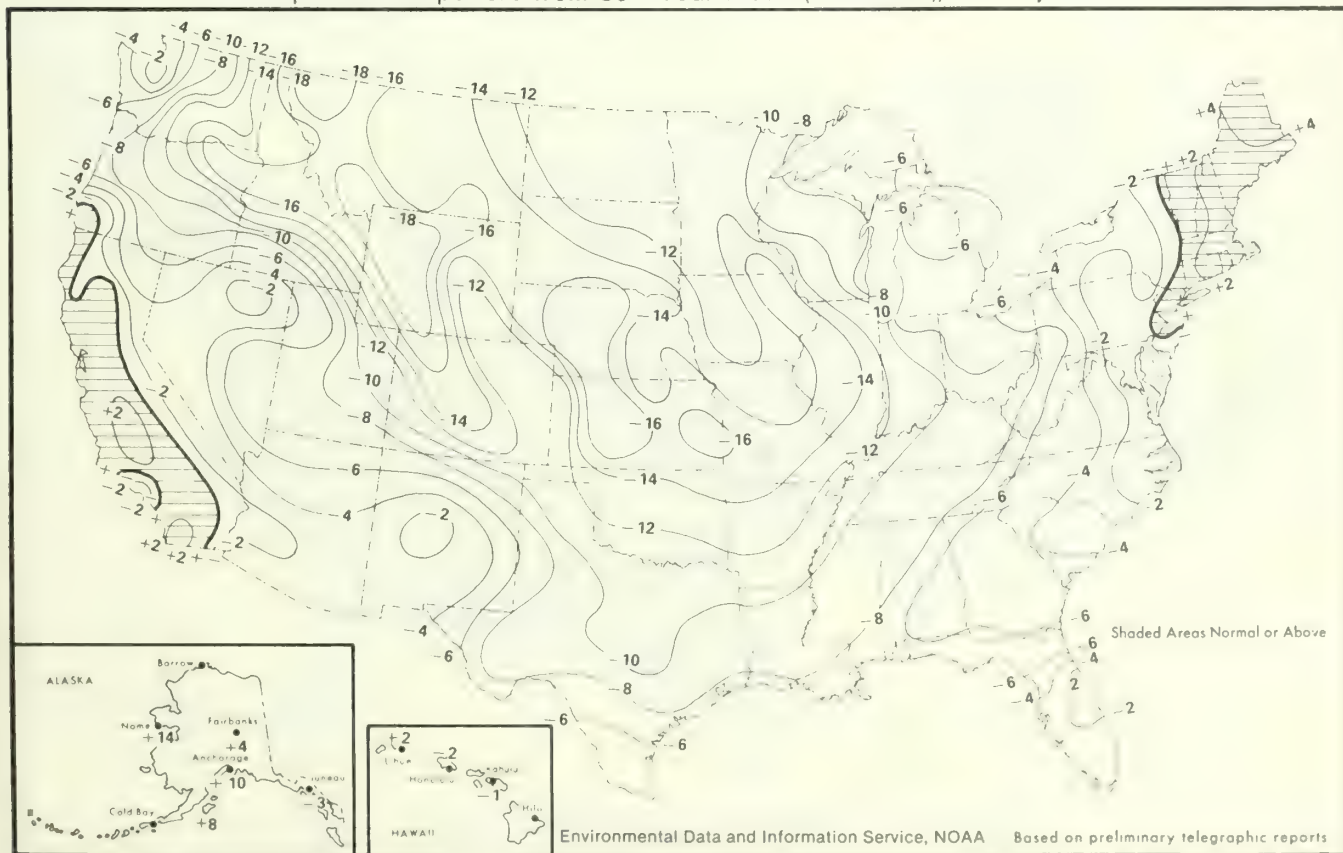
CHART III. TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.

CHART IV. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL. Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m., e.s.t., positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by X's. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Squares indicate position of stationary center for period shown beside it.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), January



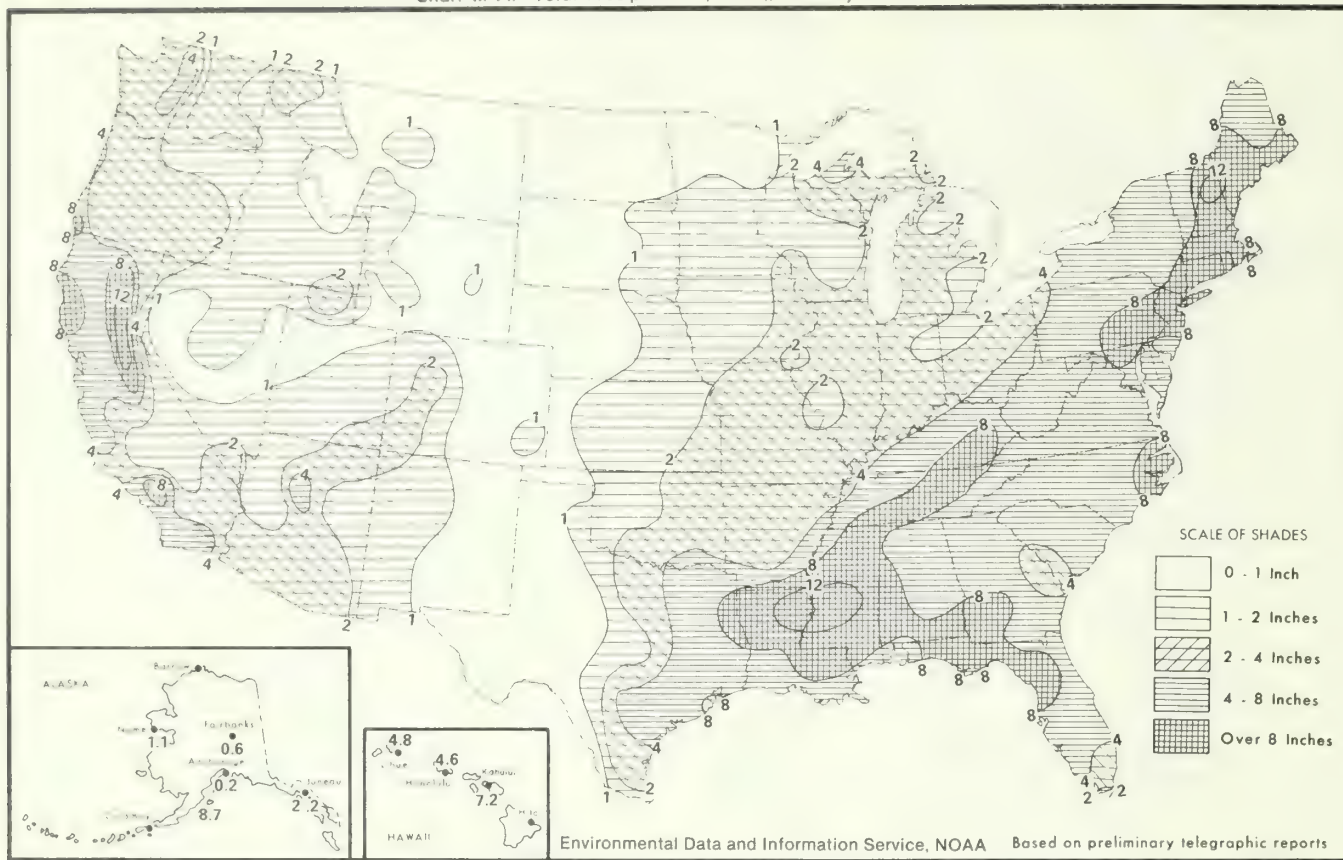
B. Temperature Departure from 30 - Year Mean (°F 1941-70), January 1979



Environmental Data and Information Service, NOAA Based on preliminary telegraphic reports



Chart II. A. Total Precipitation (Inches), January 1979



B. Percentage of Normal Precipitation, January 1979

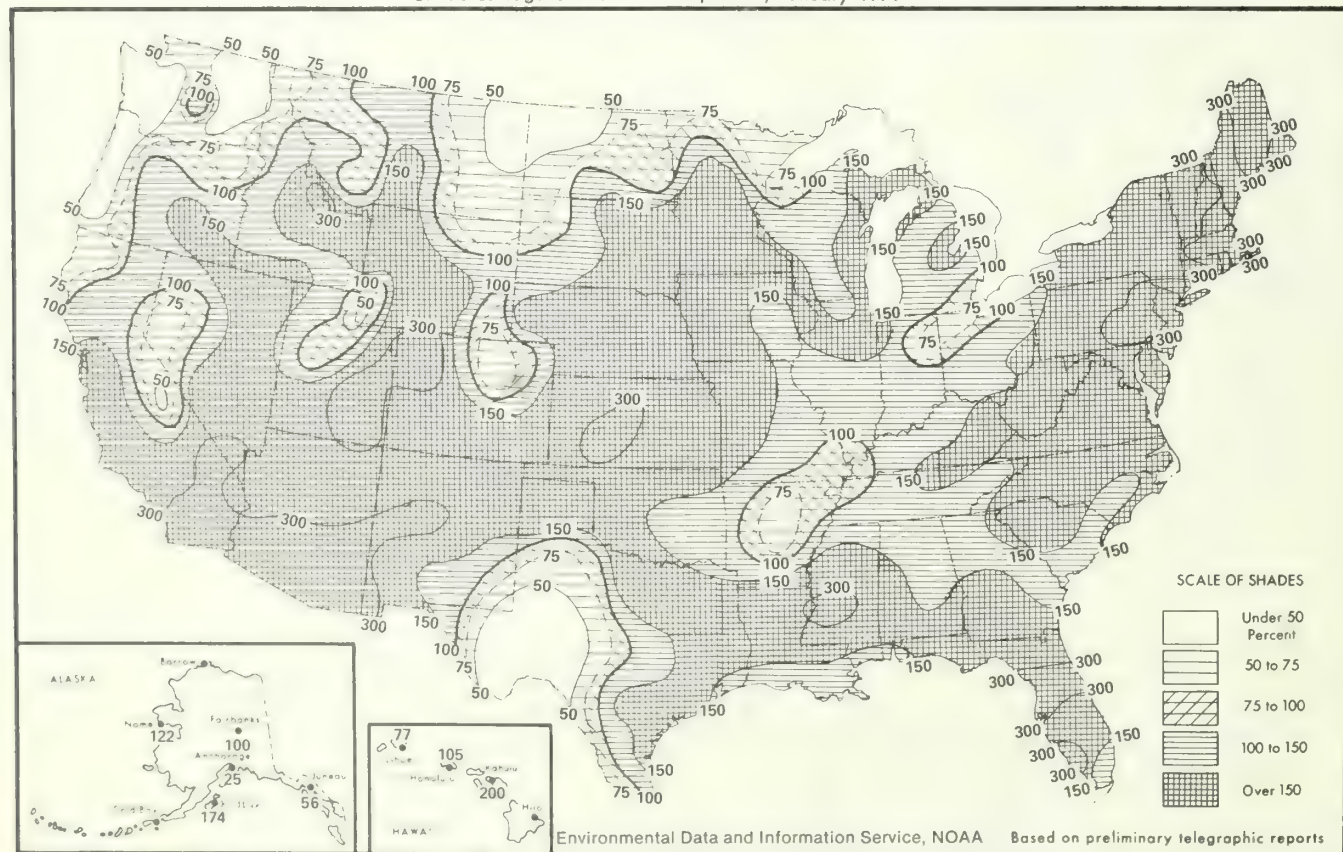
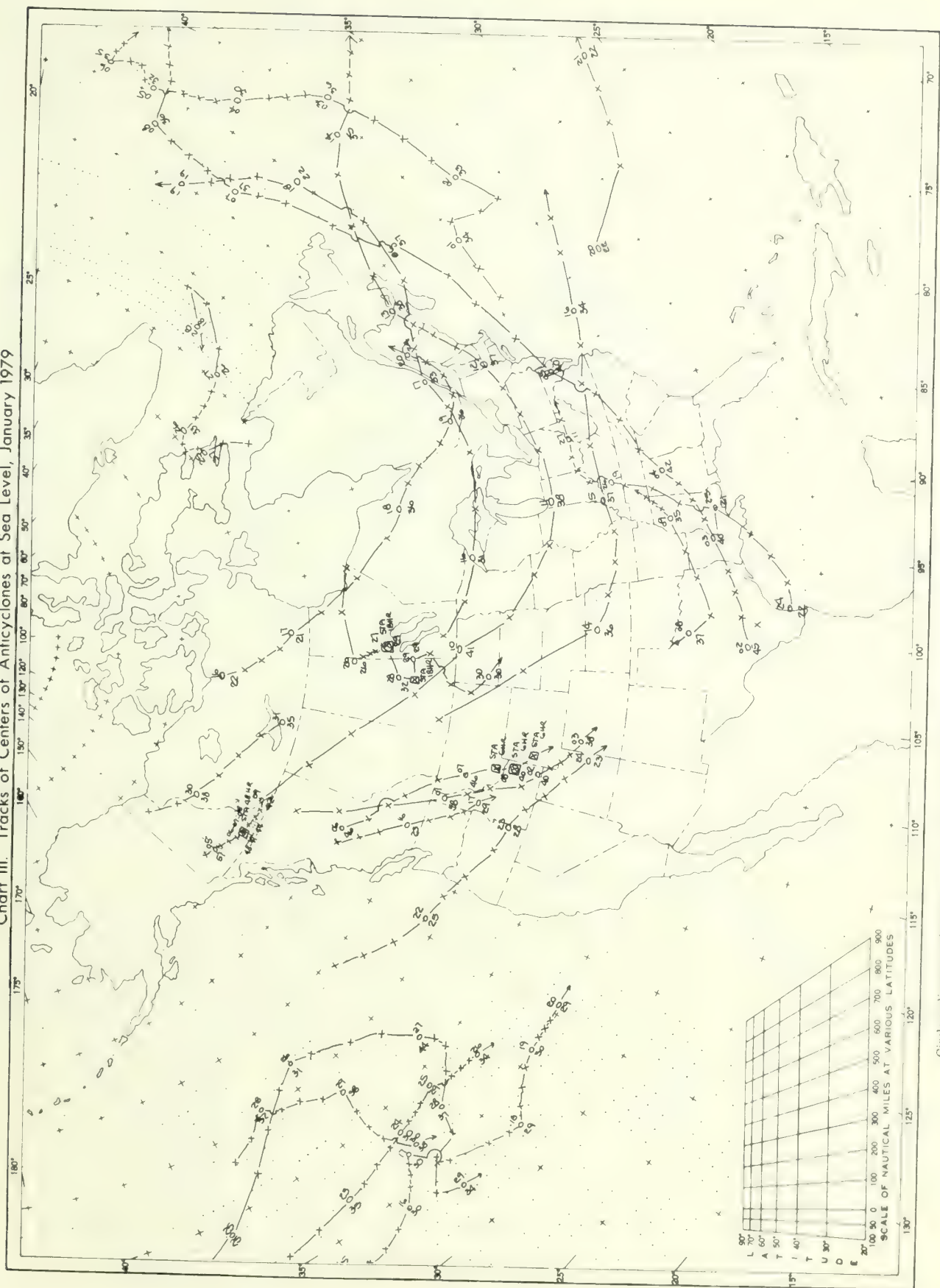


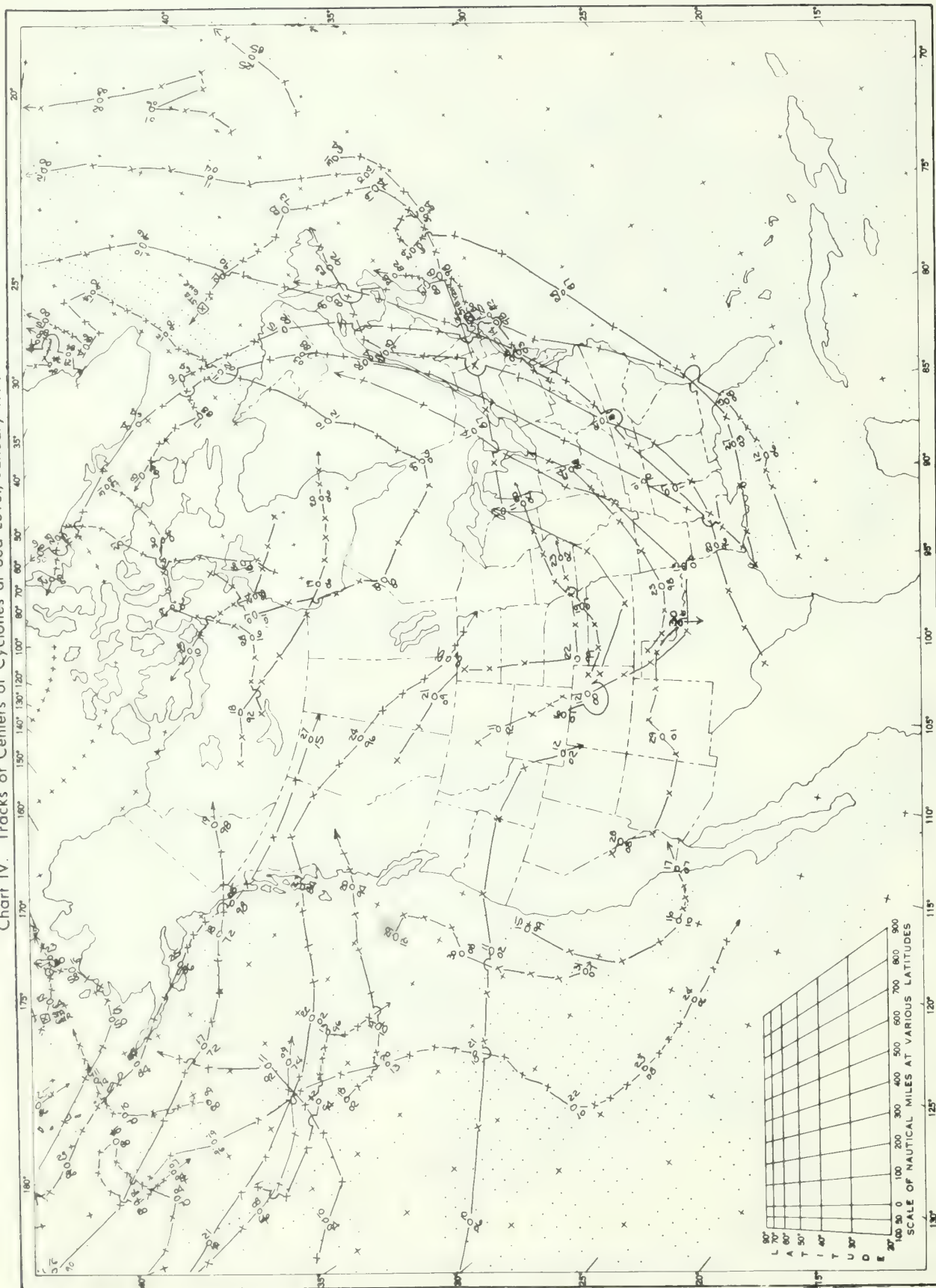
Chart III. Tracks of Centers of Anticyclones at Sea Level, January 1979



Circle indicates position of center at 7 00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart IV. Tracks of Centers of Cyclones at Sea Level, January 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 'x's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.











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FEBRUARY 1979

VOLUME 30

NUMBER 2

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

FEBRUARY 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Much of California and the Pacific Northwest recorded above-normal precipitation during the month. Percentages ranged up to 150% above totals expected this time of year. The northern Plains also exceeded normal precipitation; amounts well above an inch brought parts of this area past 300% of normal. Precipitation was generally heavier than the average from New Mexico eastward to the Atlantic and from eastern Texas northeastward to Pennsylvania. Flooding occurred in the Deep South and in the mid-Atlantic area. Temperatures averaged colder than normal over most of the Nation. The northern and central Plains were 12 to 15° colder than normal. Only the West Coast and Plateau averaged near normal temperatures.

As the month began, a blast of cold air moved from western Canada to envelop the Rockies and Plains. Sub-zero temperatures were felt in the Plains as far south as Oklahoma. Spotty snowcover over most of the winter wheat area afforded some protection. A storm system moved into southern California and spread heavy rain along the coast with lesser amounts, in the form of snow, hitting the Plateau and central Rockies. A low pressure system formed in the Gulf of Mexico and spread precipitation northward and eastward to cover most of the area east of the Mississippi River.

Early in the week of the 5th-11th, another surge of cold air pushed southward into the Plains. The average temperature for the week was 21° colder than normal in parts of the central Plains. The coldest minimum temperature in this area plummeted to -20° in northern Missouri and southern Iowa. Freezing temperatures reached into northern Florida. Another storm system formed in the Gulf of Mexico, but this time stayed to the south and caused heavy rain from southern Louisiana to central Georgia and moderate rain or freezing rain into the mid-Atlantic States.

Some heavy rain, snow in the mountains, fell in the Pacific Northwest.

The mid-month week of the 12th-18th brought precipitation to nearly all of the Nation. Heavy rain or snow fell in the West with moderate amounts in the South and mid-Atlantic areas. Temperatures were warmer than normal in the West but colder east of the Rockies. Departures from normal plunged as much as 27° in New York State. At week's end, heavy snow began to fall in Georgia and moved northward.

Early in the week of the 19th-25th, a low pressure system moved northward along the East Coast and left a heavy snowcover from Georgia to southern New England. Amounts ranged from 3 to 5 inches in Georgia to 20 to 25 inches in parts of the mid-Atlantic area. Subsequent warm rain depleted most of the snowcover. Again, precipitation fell in most of the Nation during the week. Heaviest amounts dampened Washington State, northern California, and the Southeast. Temperatures averaged near or slightly above normal in much of the Nation, but the northern Plains showed 12 to 15 degrees colder than normal.

During the last days of the month, a strong low pressure system caused rain from the Carolinas to New England stretching as far west as the Ohio Valley. Local flooding occurred in some mid-Atlantic areas. In the West, some heavy rain fell from central California northward. Snow fell in the Plateau and northern Rockies. Thunderstorms broke out in the South, and hail was recorded at several places along the lower Mississippi River. Cold air moved all the way to northern Florida but was rapidly replaced by another warming trend. Moderately cold air dominated the northern tier of States.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

FEBRUARY 1979

STATE	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.		
Alabama	2 Stations	80	16-	Calera 2 SW	-4	10	2 Stations	11.23	Muscle Shoals FAA AP	3.57		
Alaska	Cape Sarichef	50	21-	Northway FAA AP	-71	9	Beaver Falls	11.00	18 Stations	.00		
Arizona	Flagstaff Old Natl Monument	86	13	Hawley Lake	-20	7	Bright Angel R S	4.17	Dateland Whitewng Rch	.00		
Arkansas	2 Stations	79	16	3 Stations	-8	10	Shirley	8.20	Gravette	1.98		
California	Kern River Power House 1	83	12	Bodie	-24	3	Bucks Creek Power House	19.15	Gold Rock Ranch	.00		
Colorado	Trinidad FAA AP	82	13	Taylor Park	-42	5	Independence Pass 5 SW	5.40	8 Stations	.00		
Connecticut	3 Stations	53	28	Falls Village	-21	12	Groton	5.17	Falls Village	2.71		
Delaware	Bridgetown 1 NW	56	28	Middletown 1 WSW	-15	14	Milford 2 WSW	7.44	Georgetown 5 SW	5.41		
Florida	Clewiston U.S. Engineers	89	25	2 Stations	15	10	Niceville	12.78	2 Stations	.16		
Georgia	Waycross 4 NE	83	24	Blairsville Exp Station	2	10	Warrenton	11.56	Glennville	2.89		
Hawaii	2 Stations	85	23-	Mauna Kea Obs 111.2	19	28-	Mount Waialeale 1047	80.97	Puukohola Heiau 98.1	2.64		
Idaho	Three Creek	62	11	Island Park Dam	-37	1	Mullan	7.50	Chilly Barton Flat	.07		
Illinois	Kaskaskia R Nav Lock	66	24	Mount Carroll	-28	5	Anna 1 E	7.19	Piper City 3 SE	.55		
Indiana	Paoli	65	23	Frankfort Disposal Plant	-22	5	Evansville	5.73	Auburn 2 SSE	.35		
Iowa	Keokuk Lock and Dam 19	47	23	Grinnell 3 SW	-34	9	Lansing	1.40	Marble Rock	.08		
Kansas	Hugoton	81	14	Lincoln 1 ESE	-24	1	Geneseo	1.92	2 Stations	.00		
Kentucky	Pikeville	73	24	2 Stations	-13	11	Hickman 1 E	8.43	Meta 4 SE	2.34		
Kansas & Iowa	2 Stations	80	15-	Tallulah	13	10	Thibodaux	14.25	Hosston	3.88		
Michigan	Saco	54	28	Rangeley	-38	14	Woodland	4.02	Gardiner	.86		
Maryland	2 Stations	59	28-	Unionville	-20	13	Mechanicsville 1 SE	D 8.55	Hancock Fruit Lab	D3.90		
Massachusetts	2 Stations	53	28-	Chester 2	-30	18-	Chatham WSMO	5.71	Birch Hill Dam	2.08		
Michigan	2 Stations	53	28	2 Stations	-44	17	Munising	4.71	Yale 1 NNE	T		
Minnesota	Moose Lake L SSE	48	28	Waskish Ranger Station	-40	16	Tower 3 S	2.81	Theilman	.27		
Mississippi	Columbia	79	15	2 Stations	5	10+	Pascagoula 2 ENE	14.72	Lafayette Springs	2.80		
Missouri	3 Stations	71	24-	Plattsburg Waterworks	-30	10+	Puxico	8.07	Sedalia Water Plant	.18		
Montana	Yellowtail Dam	61	13	Malta 7 E	-38	15	Heron 2 NW	5.98	2 Stations	T		
Nebraska	Beaumont	66	14	Mullen 21 NW	-30	2	Bruning	.84	2 Stations	.00		
Nevada	Pahrump U of N Lab	73	13	Spring Valley State Park	-28	3	Mount Rose Bowl	6.68	Las Vegas WSO AP	.07		
New Hampshire	Nashua 2 NNW	53	28	2 Stations	-40	12	Mount Washington	4.34	Colebrook 2 E	1.03		
New Jersey	Wauson 1 SE	65	28	Sussex 1 SE	-18	18	Millville FAA AP	7.57	Mahwah	2.86		
New Mexico	Bitter Lakes Wildlife Ref	86	15	El Vado Dam	-31	4	Sandia Crest	2.45	10 Stations	.00		
New York	New York Laurel Hill	58	28	Old Forge	-52	18	Holbrook	6.11	Chazy	.54		
North Carolina	2 Stations	75	26-	Celo 2 S	-6	10	Lake Toxaway 2 SW	9.36	Cedar Island	2.81		
North Dakota	Medora	46	19	3 Stations	-39	17+	Fullerton 1 ESE	2.28	Hannah 2 N	.12		
Ohio	4 Stations	65	24-	Dorset	-28	17	London Waterworks	5.27	Wauseon Water Plant	.46		
Oklahoma	3 Stations	84	15-	Pawhuska	-14	1	Hee Mountain Tower	6.02	Goodwell Research Station	T		
Oregon	Estacada	64	18	Seneca	-39	2	Valsetz	25.40	Malheur Refuge Hdq	.23		
Pennsylvania	Philadelphia WSFO	58	28	2 Stations	-34	18-	Chadds Ford	6.90	West Hickory	1.38		
Puerto Rico	Guayama	94	20	Adjuntas Substation	47	6-	Rio Grande El Verde	13.42	4 Stations	.00		
Rhode Island	Kingston	53	28	Kingston	-14	12	Newport	5.33	Woonsocket	3.71		
South Carolina	Holly Hill	79	16	Simms Water Plant	4	19	Santuck	9.22	Charleston WSO AP	3.04		
South Dakota	Ellis 4 NW	57	10	Britton	-33	4	Harding 3 SE	2.30	2 Stations	.01		
Tennessee	Chattanooga WSO AP	73	15	Livingston Radio WLIV	-13	10	Samburg Wildlife Refuge	7.87	Newport 1 NW	3.05		
Texas	Archer City	95	15	Perryton 5 NNE	-3	1	San Augustine	8.85	6 Stations	.00		
Utah	Zion National Park	68	13	3 Stations	-33	3	Snowbird	7.43	Wah Wah Ranch	.00		
Vermont	Dorset 1 S	50	28	Enosburg Falls	-38	12	Searsburg Station	3.13	3 Stations	.60		
Virginia	Grundy	72	24	Sterling (RCS)	-17	18	Lawrenceville 5 W	7.59	Grundy	3.13		
Virgin Islands	Truman Field FAA AP	90	25-	Alex Hamilton Field FAA	61	5	Beth Upper New Works	3.80	Water Isle	1.07		
Washington	4 Stations	62	27-	2 Stations	-20	2+	Spruce	30.16	Prosser 4 NE	.23		
West Virginia	Logan	72	24	Brandonville	-20	11	Snowshoe	7.20	Beckley WSO AP	2.54		
Wisconsin	Solon Springs	48	28	Brule Island	-48	17	Medford	2.29	Baraboo	.41		
Wyoming	2 Stations	66	13	3 Stations	-37	1	Snake River	3.89	3 Stations	.00		

## CLIMATOLOGICAL DATA

METRIC UNITS

FEBRUARY 1977

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)		°																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Station Q	Sea level	Highest	Date	No. of days		Average dew point	Average relative humidity	Total	mm	Departure from normal	Greatest in 24 hours	25 mm or more	No. of days	Snow, ice pellets	Maximum depth on ground		Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
						Max 32° or above	Min 32° or below																					Total	mm	With thunderstorms	No. of days	Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													



U. S. A. 1.7.

## CLIMATOLOGICAL DATA

METRIC UNITS

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		Station	Sea level	Average maximum		Average minimum		Departure from normal	Highest		Date	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower				Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm or more	No. of days	Snow, ice pellets	Total	Maximum depth on ground	Residual speed	Residual direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
				°C	°F	°C	°F		°C	°F						°C	°F																				mm	in	mm	in	mm	in	mm	in	m/s	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi/h	mi



## CLIMATOLOGICAL DATA

METRIC UNITS

State and Station	Pressure										Temperature										Precipitation										Wind				No. of days (sunrise to sunset)																			
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total	Maximum depth on ground	Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)	Possible sunshine																					
												Max 32.2 °C or above	Min. 0 °C or lower																																									
MINNESOTA																																																						
MINNEAPOLIS	264	991.9	1024.3	-7.1	-17.4	-12.2	-3.6	3.3	23+	-32.8	5	0	28	-17.8	60	35	14	13	10	1	34.3	635	0.4	14	10.7	SW	23+	5	9	14	6.8	65																						
MURKIN	305	973.2	1024.2	-9.2	-20.1	-14.6	-6.2	1.7	22	-33.9	9	0	28	-17.8	72	9	-8	5	6	0	127	535	1.2	21	14.8	SW	19	7	15	6.8																								
MURKIN	313	984.8	1024.5	-8.7	-21.3	-14.9	-4.0	2.8	26	-35.0	5	0	28			42	23	16	15	0	351	660				16	4	16	6.6																									
MISSISSIPPI																																																						
ALBANY	94	1009.5	1021.5	13.0	2.5	7.8	-2.1	25.6	15	-10.0	10	0	10	3.3	80	212	95	83	13	3	1	0	0.2	35	11.2	13	24+	2	7	19	7.9	34																						
ALBANY	88	1010.2	1021.6	13.3	1.9	7.6	-2.3	24.4	15	-9.4	10	0	10	2.8	76	189	66	69	12	3	1	0	0.5	34	8.9	34	9	2	5	21	8.0																							
MISSOURI																																																						
COLUMBIA REGIONAL	270	989.2	1024.0	0.3	-10.3	-4.9	-5.8	11.7	27	-26.1	5	0	24	-9.4	71	36	-8	13	7	1	178	330	0.8	4	13.4	N	25+	8	2	18	7.0	45																						
KANSAS CITY	309	984.1	1022.9	-1.3	-11.1	-6.2	-6.3	12.8	27	-24.4	5	0	25	-10.6	71	20	-12	14	6	0	38	279	0.4	4	13.0	NW	15	6	10	12	6.2	74																						
KANSAS CITY MUN AP	247	974.6	1022.9	0.9	-9.4	-4.2	-5.6	15.0	27	-23.3	1	0	23	-10.6	63	19	-14	6	4	0	74	330	0.9	35																														
ST JOSEPH	247	974.6	1022.9	0.9	-9.4	-4.2	-5.6	15.0	27	-23.3	1	0	23	-10.6	63	19	-14	6	4	0	74	330	0.9	35																														
ST LOUIS	163	1002.4	1023.7	-0.1	-9.8	-4.9	-6.7	14.4	23	-12.2	6	0	25	-7.2	85	38	-15	16	11	1	122	203	0.7	1	14.8	N	25	7	1	20	7.3	41																						
SPRINGFIELD	386	974.6	1021.8	3.4	-8.9	-2.7	-5.5	18.9	22	-27.2	6	0	25	-6.7	75	42	-14	15	7	1	46	305	0.5	16	11.6	NW	25+	7	5	16	6.9	42																						
MONTANA																																																						
ELLINGHAM	1087	888.6	1017.3	-1.7	-12.8	-7.3	-4.7	9.4	13	-26.1	16	0	28	-12.2	66	14	-11	5	10	0	221	432	1.7	25	21.9	NW	7	4	4	20	8.0	41																						
GLASGOW	696	934.3	1021.6	-12.1	-21.8	-16.9	-7.6	1.7	5	-35.0	15	0	28	-16.1	79	19	11	5	10	0	404	483	2.7	9	13.9	10	7	1	10	17	7.8	44																						
GREAT FALLS	1116	885.5	1018.5	-0.9	-13.8	-7.3	-4.3	8.9	23+	-25.6	15	0	28	-13.3	64	14	-4	5	12	0	206	152	0.3	22	18.3	SW	5	0	4	24	8.4	44																						
HAVRE	788	922.5	1018.5	-9.6	-22.3	-15.9	-7.9	6.1	25	-35.0	15	0	28	-11.7	67	18	16	9	12	0	417	559	0.1	21	13.4	SW	4	0	8	20	8.4	53																						
HELENA	1167	877.8	1018.1	-0.6	-12.6	-6.6	-2.9	11.7	13	-31.1	2	0	27	-11.7	67	18	16	9	12	0	417	559	0.1	21	13.4	SW	4	0	8	20	8.4	53																						
KALISPELL	904	908.6	1016.4	-0.6	-9.4	-4.9	-1.1	6.1	13	-29.4	2	0	25	-8.9	72	40	15	10	19	0	183	254	1.5	28	19.2	NW	7	0	7	21	8.6	44																						
MILES CITY	801	921.8	1020.1	-7.7	-19.1	-13.3	-7.6	3.9	5	-30.6	16	0	28	-16.1	76	29	16	11	0	0	472	686	0.9	3	13.9	N	7	0	3	25	9.4																							
MISSOULA	972	901.5	1016.6	0.3	-7.5	-3.6	-0.9	7.8	12	-22.2	2	0	27	-6.7	79	26	-8	6	17	0	300	584	0.6	6	14.8	E	14	0	1	27	9.6	20																						
NEBRASKA																																																						
GRAND ISLAND	561	922.6	1022.6	-4.4	-15.8	-10.1	-1.7	5.0	19	-28.3	1	0	28	-13.3	78	11	-8	5	6	0	99	203	0.1	30	17.4	34	15	5	7	16	6.8																							
LINCOLN	359	978.0	1023.1	-4.8	-16.3	-10.6	-8.3	6.7	27	-31.1	9	0	28	-14.4	74	12	-17	5	0	0	112	229	0.7	36	17.0	NW	15	6	7	15	7.0	53																						
OMAHA	471	964.1	1023.2	-5.6	-17.6	-11.6	-7.1	5.6	14	-28.9	16+	0	28	-15.0	74	11	-9	3	10	0	155	279	0.5	31	21.0	NW	15	6	7	15	6.8																							
NORTH PLATTE	846	918.4	1021.0	-1.7	-14.8	-8.2	-6.1	9.9	26	-28.3	1	0	28	-12.2	74	2	-11	2	3	0	8	127	0.6	34	15.6	NW	22	5	11	12	6.3	59																						
OMAHA (EPPEL)	298	918.4	1021.0	-1.7	-14.8	-8.2	-6.1	9.9	26	-28.3	1	0	28	-12.2	74	2	-11	2	3	0	8	127	0.6	34	15.6	NW	22	5	11	12	6.3	59																						
OMAHA (NORTH)	399	877.4	1017.3	-5.1	-15.4	-10.2	-6.6	6.1	27	-27.2	16	0	26	-8.3	65	10	-15	4	7	0	36	99	0.4	2																														
SCOTT'S BLUFF	1206	877.4	1017.3	-5.1	-15.4	-10.2	-6.6	6.1	27	-27.2	16	0	26	-8.3	65	10	-15	4	7	0	36	99	0.4	2																														
VALENTINE	789	924.5	1016.6	-2.6	-18.2	-10.4	-6.2	8.9	26	-29.4	16+	0	28	-17.8	55	7	-6	3	5	0	41	127	1.2	33	13.9	31	22	3	10	15	7.1	69																						
NEVADA																																																						
ELKO	1539	843.6	1017.5	-6.3	-5.2	0.6	2.1	12.8	11	-22.2	3	0	24	-2.2	83	30	11	10	10	0	330	127	1.2	24	9.8	24	14	1	3	24	8.7																							
ELKO	1906	807.0	1016.3	-11.3	-11.3	-3.0	-0.7	11.1	9	-26.1	3	0	28	-1.7	54	15	0	5	6	0	180	178	3.2	20	16.5	SE	14	3	4	21	8.1	62																						
LAS VEGAS	959	941.1	1016.6	16.0	2.2	9.1	-0.4	21.7	13	-3.3	4	0	27	-2.8	48	2	-6	14	3	1	8	152	1.8	23	18.3	SW	14	9	8	11	5.7	81																						
RENO	1342	852.2	1017.1	-10.2	-4.9	2.7	-0.4	17.8	10	-15.0	3	0	27	-3.6	60	21	-10	9	0	0	99	225	1.3	22	20.6	S	13	1	7	20	8.1	66																						
WINNEBUCA	1311	867.6	1017.1	8.1	-3.7	2.2	1.0	16.1	11	-23.9	3	0	22	-3.0	61	31	10	10	11	0	307	76	2.5	20	15.6	SW	14	2	2	24	8.9	49																						
NEW HAMPSHIRE																																																						
CONCORD	104	1005.1	1018.5	-4.7	-14.2	-9.4	-4.2	9.4	28	-26.7	13	0	28	-17.2	55	58	-4	30	8	0	114	356	3.8	31	16.1	NW	6	9	8	11	5.6	67																						
MT WASHINGTON OBS	1909			-13.3	-23.3	-18.3	-3.3	2.2	26	-36.9	14	0	28			110	-55	41	14	0	566	381			63.9	NW	14	8	6	14	6.3	53																						
NEW JERSEY																																																						
ATLANTIC CITY	20	1017.6	1020.1	-0.5	-11.0	-5.7	-6.8	13.9	28	-23.9	12	0	24	-10.6	71	146	61	62	13	0	704	584	2.8	32	13.4	27	5	6	9	13	6.5	45																						
ATLANTIC CITY U	2	1020.0	1021.0	0.9	-6.1	-2.6	-0.4	12.2	28	-15.9	18+	0	22	-11.7	63	125	78	51	14	0	663	483	4.5	33	11.0	NW	1	8	6	14	6.1																							
NEWARK	17	1017.6	1021.0	-1.0	-8.4	-4.7	-5.2	13.5	28	-15.9	18+	0	22	-11.7	63	125	78	51	14	0	663	483	4.5	33	11.0	NW	1	8	6	14	6.1																							
TRENTON U	17	1017.6	1021.0	-1.0	-8.4	-4.7	-5.2	13.5	28	-15.9	18+	0	22	-11.7	63																																							

## METRIC UNITS

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[illegible]



# CLIMATOLOGICAL DATA

## METRIC UNITS

FE R AR 1977

State and Station	Pressure		Temperature				Precipitation				Wind		No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days	Max 32.2° or above	Min. 0° or lower	Average dew point	Average relative humidity	Precipitation				Wind		Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
															Elevation (ground)	mb	C	F	C	F					mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in

# CLIMATOLOGICAL DATA

## METRIC UNITS

State and Station	Elevation (ground)	Pressure				Temperature						Precipitation				Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)																					
		Station	mb	mb	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days	Max 32.2 °C or above	Min. 0 °C or lower	Average dew point	Total	mm	Departure from normal	mm	Greatest in 24 hours	25 mm. or more	With thunderstorms	No. of days	Snow, ice pellets	Maximum depth on ground	Resultant speed	m/s	Resultant direction	Speed	m/s	Direction	Date	Fastest mile (1.6 kilometers)	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10					
VIRGINIA																																											
ALHAMD	50	1015.2	1021.8	3.5	-7.3	-1.9	-6.0	15.0 28	-22.2 10	15.0 28	15.0 28	-22.2 10	15.0 28	15.0 28	0 23	-6.1	75	152	83	75	68	11	1	495	356	1.5	35	11.6	NW	19	13	0	2	26	9.4	58	7.1	7.4					
ROANKE	350	977.7	1021.1	3.5	-6.4	-1.4	-4.8	15.6 22	-14.4 18	15.6 22	15.6 22	-14.4 18	15.6 22	15.6 22	0 24	-7.8	65	136	58	58	44	13	0	490	254	1.6	32	11.2	SW	19	13	0	2	26	9.4	58	7.1	7.4					
WALLIPS ISLAND	3	2.6	-6.1	-1.7	-4.7			11.7 28+	-14.4 18	11.7 28+	11.7 28+	-14.4 18	11.7 28+	11.7 28+	0 24			1.8	58	44	13			340	127																		
WASHINGTON																																											
OLYMPIA	59	1006.1	1013.3	8.7	0.5	4.6	-0.4	15.6 25	-10.6 2+	15.6 25	15.6 25	-10.6 2+	15.6 25	15.6 25	0 12	2.2	86	235	83	61	26	0	38	25	2.7	20	13.0	19	13	0	2	26	9.4										
GUILLAYUTE	55	1003.7	1011.3	7.7	0.8	4.3	-0.9	10.0 27+	-6.7 1	10.0 27+	10.0 27+	-6.7 1	10.0 27+	10.0 27+	0 10	2.8	91	486	182	97	24	0	13	T	1.9	15	13.4	SE	17	0	2	26	9.4										
SEATTLE U	6	996.3	1013.0	8.8	2.6	5.7	-0.7	15.0 25	-3.9 2+	15.0 25	15.0 25	-3.9 2+	15.0 25	15.0 25	0 7			161	61	33	21		T				SW	13	0	2	26	9.4											
SEATTLE-TACOMA	122	928.5	1014.3	8.8	2.7	5.7	0.0	14.4 25	-3.9 2+	14.4 25	14.4 25	-3.9 2+	14.4 25	14.4 25	0 5	1.1	75	135	29	33	23	0	10	T	2.9	16	17.0	SW	13	0	2	26	9.4										
SPokane	718	928.5	1014.3	1.4	-6.9	-1.8	-1.9	8.9 26	-27.2 1	8.9 26	8.9 26	-27.2 1	8.9 26	8.9 26	0 21	-3.3	87	56	13	12	18	0	269	406	2.8	19	20.1	SW	6	0	2	26	9.4										
STAMPEDE PASS R	1206	873.4		-1.2	-5.3	-3.2	-0.9	2.8 9	-16.1 1	2.8 9	2.8 9	-16.1 1	2.8 9	2.8 9	0 28			352	90	99	26		2578	2794																			
WALLA WALLA U	289	8.3	0.6	4.4	-0.1	16.1 13+	-20.0 2	0 9		16.1 13+	16.1 13+	-20.0 2	0 9				47	12	12	15	0	48	127	1.2	26	14.3	SE	25	0	2	26	9.4											
YAKIMA	321	975.6	1015.0	5.3	-4.6	0.3	-1.7	13.9 26	-23.3 2	13.9 26	13.9 26	-23.3 2	13.9 26	13.9 26	0 23	-2.8	82	14	-6	6	11	0																					
WEST INDIES																																											
SAN JUAN P.R.	4	1015.6	1017.9	29.4	22.5	25.9	1.9	33.3 13+	20.6 4	33.3 13+	33.3 13+	20.6 4	33.3 13+	33.3 13+	2 0	20.0	74	46	-18	27	9	2	0																				
WEST VIRGINIA																																											
BECKLEY	763	928.9	1021.5	1.9	-8.0	-3.0	-3.3	13.9 22	-20.6 10	13.9 22	13.9 22	-20.6 10	13.9 22	13.9 22	0 22	-6.7	78	65	-20	19	14	0	749	305	0.8	25	13.0	12	25	1	6	21	8.6										
CHARLESTON	286	980.8	1022.3	2.9	-7.5	-2.3	-5.8	18.9 23	-17.2 11	18.9 23	18.9 23	-17.2 11	18.9 23	18.9 23	0 23	-6.1	76	96	17	35	16	0	511	178	0.9	30	11.2	23	21	3	5	20	8.3										
ELKINS	294	977.9		-1.1	-6.9	-3.3	-4.0	13.9 23	-17.2 11	13.9 23	13.9 23	-17.2 11	13.9 23	13.9 23	0 24	-7.8	67	109	35	33	15	0	475	305																			
LUNTINGTON	252	990.9	1022.0	3.1	-6.9	-1.9	-5.9	20.0 23	-17.2 10	20.0 23	20.0 23	-17.2 10	20.0 23	20.0 23	0 24			92	18	26	19		460	239	0.7	35	8.0	5	25+	1	6	21	8.6										
PARKERSBURG U	187			0.4	-8.8	-4.2	-5.7	13.0 23	-17.6 17+	13.0 23	13.0 23	-17.6 17+	13.0 23	13.0 23	0 24			79	8	23	11		592	356																			
WISCONSIN																																											
GREEN BAY	208	997.0	1024.3	-7.3	-18.3	-12.8	-5.0	5.0 23	-29.4 5	5.0 23	5.0 23	-29.4 5	5.0 23	5.0 23	0 28	-17.2	68	30	4	9	11	1	300	635	1.2	32	10.7	NW	21	10	6	12	5.9										
LA CRUSSE	198	999.0	1025.1	-6.8	-18.8	-10.8	-4.1	4.4 27+	-35.2 17	4.4 27+	4.4 27+	-35.2 17	4.4 27+	4.4 27+	0 28	-16.1	64	17	-6	17	0	1	185	711	0.3	31	11.6	W	23	9	6	13	6.2										
MAJISUN	262	990.9	1025.1	-5.8	-17.2	-11.3	-4.8	4.4 28+	-29.9 9	4.4 28+	4.4 28+	-29.9 9	4.4 28+	4.4 28+	0 28	-13.3	71	23	-1	10	0	0	221	737	1.2	30	14.8	N	25	6	7	15	6.9										
MILWAUKEE	205	997.3	1025.1	-5.9	-12.9	-9.4	-4.1	2.8 23	-23.9 5	2.8 23	2.8 23	-23.9 5	2.8 23	2.8 23	0 28			25	-4	9	12	0	231	737																			
WYOMING																																											
CASPER	1627	834.1	1016.9	0.7	-10.1	-6.7	-1.8	8.3 13	-30.0 2	8.3 13	8.3 13	-30.0 2	8.3 13	8.3 13	0 26	-10.0	65	10	-3	4	8	0	185	152	5.9	23	17.4	21	14	4	9	15	7.3										
CHEYENNE	1867	807.3	1014.7	5.7	-6.2	-0.2	1.4	18.9 13	-17.8 15+	18.9 13	18.9 13	-17.8 15+	18.9 13	18.9 13	0 23	-12.2	43	1	-8	2	3	0	5	46	4.4	27	25.0	NW	7	8	13	6.3											
LANDER	1696	825.6	1018.3	0.4	-13.5	-6.5	-2.9	11.7 13	-30.4 2	11.7 13	11.7 13	-30.4 2	11.7 13	11.7 13	0 28	-11.7	70	1	-15	1	2	0	8	47	0.5	21	14.3	SW	14	4	13	11	6.6										
SHERIDAN	1708	876.1	1018.9	-1.6	-16.5	-9.0	-5.6	9.4 9	-28.9 16+	9.4 9	9.4 9	-28.9 16+	9.4 9	9.4 9	0 28	-12.2	75	10	-10	4	8	0	175	427	1.7	31	17.0	NW	7	1	9	18	7.8										

FEBRUARY 1979



## HEATING DEGREE DAYS

(Base 65°F.)

FEBRUARY 1979

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				IDAHO				NEBRASKA				TENNESSEE			
BIRMINGHAM U	597			BOISE	855	4956	4263	GRAND ISLAND	1431	5999	4825	BRISTOL	920	3450	3334
BIRMINGHAM	584	2381	2319	LEWISTON	808	4849	4022	LINCOLN	1454	5853	4727	CHATTANOOGA	725	2815	2806
HUNTSVILLE	691	2681	2664	POCATELLO	1034	5872	5080	NORFOLK	1506	6211	5243	KNOXVILLE	786	2972	2774
MOBILE	401	1442	1423					NORTH PLATTE	1335	6321	4966	MEMPHIS	734	2772	2617
MONTGOMERY	445	1758	1884	ILLINOIS				OMAHA (EPPELY)	1333	5407	4625	NASHVILLE	877	3239	2951
				CAIRO II	965	3593	3070	OMAHA (NORTH)	1435	5837	4984	OAK RIDGE	826	3323	3096
ALASKA				CHICAGO O HARE	1360	5388	4818	SCOTTSDALE	1029	5607	4887				
ANCHORAGE	1515	6871	7845	CHICAGO MIDWAY	1345	5308	4566	VALENTINE	1446	6669	5330	TEXAS			
ANNETTE	930	4973	4757	HOLING	1445	5816	4947					ABILENE	567	2509	2141
BARROW	2390	13090	13414	PEORIA	1403	5446	4626	NEVADA				AMARILLO	697	3729	3216
BARTER ISLAND	2402	12622	13288	ROCKFORD	1498	5904	5115	ELKO	889	5136	5312	AUSTIN	460	1880	1470
BETHEL	1962	8253	9152	SPRINGFIELD	1336	4974	4257	ELY	1072	5931	5394	BROWNSVILLE	203	695	561
BETTLES	2574	11033						LAS VEGAS	458	2198	2141	CORPUS CHRISTI	256	995	810
RIC DELTA	2375	9938	10159	INDIANA				RENO	781	4620	4237	DALLAS FT WORTH	635	2398	1959
COLD BAY	1020	5700	6413	EVANSVILLE	1125	4156	3613	WINNEMICCA	809	4896	4675	DEL RIO	363	1584	1344
FAIRBANKS	2513	10463	10781	FORT WAYNE	1401	5095	4615					EL PASO	494	2248	2201
GULKANA	2374	9950	10338	INDIANAPOLIS	1288	4669	4236					GALVESTON	361	1241	1017
HOMER	1375	6462	7112	SOUTH RENO	1356	5025	4754	NEW HAMPSHIRE	1392	5779	5349	HOUSTON INTERCON	376	1548	1222
JUNEAU	1505	6645	6280					CONCORD	1849	9707	9402	LUBBOCK	640	3097	2818
KING SALMON	1648	6860	8071	IDAHO				MT WASHINGTON OBS				MIDLAND	566	2676	2174
KODIAK	1055	5230	5862	BURLINGTON	1377	5459	4674	NEW JERSEY				PORT ARTHUR	360	1326	1283
KOTZEBUE	2003	9547		DES MOINES	1493	5714	5069	ATLANTIC CITY	1208	4070	3666	SAN ANGELO	510	2409	1879
MC GRATH	2383	9937	10660	DURHAM	1511	6281	5439	ATLANTIC CITY U	1045	3677	3331	SAN ANTONIO	356	1590	1345
NOME	1847	8384	9635	SIOUX CITY	1560	6454	5271	NEWARK	1155	3778	3736	VICTORIA	352	1416	1053
ST. PAUL ISLAND	974	6105	7081	WATERLOO	1547	6325	5580	TRENTON U	1155	3899	3690	WACO	530	2302	1722
TALKEETNA	1649	8008	8406	KANSAS				NEW MEXICO				WICHITA FALLS	750	3005	2370
UNALAKLET				CONCORDIA	1294	5089	4267	ALBUQUERQUE	665	3306	3357	UTAH			
VALDEZ	1379	6890	7408	RODGE CITY	1013	4554	3824	CLAYTON	806	4237	3803	MILFORD	993	5213	4688
YAKUTAT	1350	6536	6458	RODOLAND	936	4967	4469	ROSWELL	591	3073	3005	SALT LAKE CITY	902	4561	4397
				TOPEKA	1277	5066	4038								
ARIZONA				WICHITA	1143	4476	3644	NEW YORK				VERMONT			
FLAGSTAFF	1089	5355	4999					ALBANY	1414	5462	5073	BURLINGTON	1610	6139	5709
PHOENIX	254	1263	1307	KENTUCKY				RINGHAMTON	1437	5497	5236				
TUCSON	311	1520	1428	COVINGTON	1216	4409	3860	RUFFALO	1400	5213	4925	VIRGINIA			
WINSTON	757	3825	3621	LIVINGSTON	1061	4032	3640	NEW YORK U	1100	3772	3583	LYNCHBURG	1033	3581	3283
YUMA	174	1083	884	LOUISVILLE	1030	3780	3588	NEW YORK KENNEDY	1115	3666	3737	NORFOLK	879	2713	2677
								NEW YORK LA GUARDIA	1173	3897	3609	RICHMOND	1011	3177	3080
ARKANSAS				LOUISIANA				ROCHESTER	1432	5132	4829	ROANOKE	992	3638	3312
FORT SMITH	869	3347	2714	RATON ROUGE	418	1668	1429	SYRACUSE	1457	5234	4819	WALLOPS ISLAND	1004	3237	3139
LITTLE ROCK	732	2921	2724	LAKE CHARLES	406	1543	1272					WASHINGTON			
NO. LITTLE ROCK	794	3101	2524	NEW ORLEANS	347	1312	1244	ASHEVILLE	810	3187	3252	OLYMPIA	683	4301	3812
				SHREVEPORT	517	2132	1806	CAPE HATTERAS R	663	1903	2038	QUILLAYUTE	703	4234	3937
CALIFORNIA								CHARLOTTE	750	2660	2578	SEATTLE	630	3593	3282
BAKERSFIELD	352	1585	1757	MAINE				GREENSBORO	896	3152	3019	SEATTLE-TACOMA	630	3609	3568
BISHOP	731	3480	3213	CARRIAGE	1527	6968	6854	RALEIGH	792	2695	2784	SPOKANE	1011	6150	4944
BLUE CANYON	833	3967	3612	PORTLAND	1380	5519	5313	WILMINGTON	606	1993	1975	STAMPEDE PASS R	1080	6833	6277
EUREKA U	467	3236	3020	MARYLAND								WALLA WALLA U	693	4426	3640
FRESNO	372	2021	2064	BALTIMORE	1100	3643	3591	NORTH DAKOTA				YAKIMA	901	5293	4492
LONG BEACH	268	1193	1117					BISMARCK	1837	7718	6886	WEST VIRGINIA			
LOS ANGELES	295	1122	1172	MASSACHUSETTS				FARGO	1863	7864	6994	BECKLEY	1070	4154	4175
LOS ANGELES U	274	1205	846	BLUE HILL OBS R	1296	4864	4525	WILLISTON	1774	7779	6754	CHARLESTON	1031	3789	3538
MT SHASTA R	842	4609	4017	ROSTON	1169	4275	4050					ELKINS	1187	4606	4405
OAKLAND	387	2007	1982	WORCESTER	1354	5273	4918	OHIO				HUNTINGTON	1014	3876	3556
RED BLUFF	418	1945	2032					AKRON	1348	4935	4572	PARKERSBURG U	1128	4160	3684
SACRAMENTO	446	2278	2104	MICHIGAN				CINCINNATI ABBE OB	1157	4209	3720				
SANDREGR R	717	0	1013	ALPENA	1576	6188	5963	CLEVELAND	1281	4608	4473	WISCONSIN			
SAN DIEGO	405	2245	2049	DETROIT	1340	4930	4539	COLUMBUS	1270	4618	4295	GREEN BAY	1564	6543	5905
SAN FRANCISCO	332	2016	2006	DETROIT METRO	1355	5169	4699	DAYTON	1281	4647	4243	LACROSSE	1466	6064	5581
SAN FRANCISCO U	442	2220	1960	FLINT	1458	5449	5093	MANSFIELD	1353	5046	4309	MADISON	1489	6291	5691
SANTA MARIA	384	2136	2129	GRAND RAPIDS	1393	5574	4943	TOLEDO	1390	5221	4717	MILWAUKEE	1391	5689	5355
STOCKTON				HOUGHTON LAKE	1530	6368	5958	YOUNGSTOWN	1332	4950	4686				
				LANSING	1452	5542	5026					WYOMING			
COLORADO				MUSKOGEE	1408	5582	4918	OKLAHOMA				CASPER	1153	6441	5297
ALAMOSA	1518	7142	6230	SAULT STE MARIE	1673	6983	6422	OKLAHOMA CITY	932	3547	2947	CHEYENNE	933	5523	5001
COLORADO SPRINGS	906	4133	4864	MINNESOTA				TULSA	972	3626	2948	LANDER	1240	7098	5632
DENVER	844	4842	4299	DULUTH	1679	7583	6999					SHERIDAN	1376	7022	5469
GRAND JUNCTION	1154	5308	4310	INTERNATIONAL FALLS	1837	8619	7737	OREGON							
PUEBLO	849	4812	4038	MINNEAPOLIS	1537	6522	6088	ASTORIA	641	3848	3491				
				ROCHESTER	1658	7165	6089	BURNS U	941	5663	5085				
CONNECTICUT				ST CLOUD	1677	7432	6584	EUGENE	614	3956	3284				
BRIDGEPORT	1126	3987	3874	MISSISSIPPI				HELFORD	639	3728	3516				
HARTFORD	1310	5108	4670	JACKSON	531	2133	1907	PENDLETON	757	4917	3870				
				MERIDIAN	536	2201	1990	PORTLAND	615	3861	3370				
DELAWARE								SALEM	619	3842	3354				
WILMINGTON	1197	4033	3706	MISSOURI				SEXTON SUMMIT R	849	4537	4148				
				COLUMBIA REGIONAL	1169	4486	3906	PENNSYLVANIA							
DIST. OF COLUMBIA				KANSAS CITY	1230	4822	4126	ALLENSTOWN	1241	4439	4329				
WASHINGTON DULLES	1163	3973	3798	ST JOSEPH	1354	5142	4204	ERIE	1424	5222	4834				
WASHINGTON NATIONAL	1019	3187	3257	ST LOUIS	1167	4630	3683	HARRISBURG	1182	4059	3982				
				SPRINGFIELD	1093	4271	3531	PHILADELPHIA	1170	3829	3660				
FLORIDA								PITTSBURGH	1311	4878	4418				
APPALACHICOLA U	394	1270	1158	MONTANA				PITTSBURGH U	1214	4399	3962				
DAYTONA BEACH	244	598	760	BILLINGS	1286	6551	5185	SCRANTON	1370	5087	4636				
FORT MYERS	100	246	409	GLASGOW	1780	7902	6574	WILLIAMSPORT	1264	4540	4454				
JACKSONVILLE	371	1334	1127	GREAT FALLS	1292	6644	5404								
KEY WEST	22	39	59	HAVRE	1728	7618	6384	RHODE ISLAND	1196	4035	3880				
MIAMI	82	167	189	HELENA	1250	6932	5860	PROVIDENCE	1261	4587	4275				
ORLANDO	214	500	626	KALISPELL	1168	7140	6108								
PENSACOLA	390	1344	1930	MILES CITY	1594	7188	5814	SOUTH CAROLINA							
TALLAHASSEE	424	1486	1342	MINNEAPOLIS	1099	6685	5717	CHARLESTON	505	1646	1772				
TAMPA	190	512	619					CHARLESTON U	527	1555	1570				
WEST PALM BEACH	118	244	274					COLUMBIA	613	2020	2143				
								GRNVLLF-SPRTHBRG	715	2658	2540				
GEORGIA															
ATHENS	635	2371	2401					SOUTH DAKOTA							

# COOLING DEGREE DAYS

(Base 65°F.)

FEBRUARY 1979

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month		This month	Period January through this month	Normal January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM U	0	0	26	HILO	160	315	367	GRAND ISLAND	0	0	0	CHARLESTON	2	2	25
BIRMINGHAM	1	1	19	HONOLULU	209	368	438	LINCOLN	0	0	0	CHARLESTON U	0	0	31
HUNTSVILLE	0	0	6	KAHULUI	197	394	393	NORFOLK	0	0	0	COLUMBIA	0	0	5
MOBILE	6	6	32	LIHUE	224	487	372	NORTH PLATTE	0	0	0	GRVLYE-SARTNBURG	0	0	0
MONTGOMERY	2	2	30					OMAHA (EPPELEY)	0	0	0				
ALASKA				IDAHO				OMAHA (NORTH)	0	0	0	SOUTH DAKOTA			
ANCHORAGE	0	0	0	BOISE	0	0	0	SCOTTSBLUFF	0	0	0	ABERDEEN	0	0	0
ANNETTE	0	0	0	LEWISTON	0	0	0	VALENTINE	0	0	0	HURON	0	0	0
BARRON	0	0	0	POCATELLO	0	0	0					RAPID CITY	0	0	0
BARTER ISLAND	0	0	0					NEVADA				SIOUX FALLS	0	0	0
BETHEL	0	0	0	ILLINOIS				ELKO	0	0	0				
BETTES	0	0	0	CAIRO U	0	0	0	ELY	0	0	0	TENNESSEE			
BIG DELTA	0	0	0	CHICAGO O HARE	0	0	0	LAS VEGAS	0	0	6	BRISTOL	0	0	0
COLD BAY	0	0	0	CHICAGO MIDWAY	0	0	0	RENO	0	0	0	CHATTANOOGA	0	0	6
FAIRBANKS	0	0	0	MOLINE	0	0	0	WINNEMUCCA	0	0	0	KNOWVILLE	0	0	8
GULKANA	0	0	0	PEORIA	0	0	0					MEMPHIS	0	0	0
HOMER	0	0	0	ROCKFORD	0	0	0	NEW HAMPSHIRE				NASHVILLE	0	0	0
JUNEAU	0	0	0	SPRINGFIELD	0	0	0	CONCORD	0	0	0	OKA RIDGE	0	0	0
KING SALMON	0	0	0					MT WASHINGTON OBS	0	0	0				
KODIAK	0	0	0	INDIANA								TEXAS			
KOTZBUE	0	0	0	EVANSVILLE	0	0	0	NEW JERSEY				ABILENE	9	9	0
MC GRATH	0	0	0	FORT WAYNE	0	0	0	ATLANTIC CITY	0	0	0	AMARILLO	0	0	0
NOME	0	0	0	INDIANAPOLIS	0	0	0	ATLANTIC CITY U	0	0	0	AUSTIN	7	9	24
ST. PAUL ISLAND	0	0	0	SOUTH BEND	0	0	0	NEWARK	0	0	0	BROWNVILLE	56	101	185
TALKEETNA	0	0	0					TRENTON U	0	0	0	CORPUS CHRISTI	39	65	82
UNALAKLEET	0	0	0	IOWA								DALLAS FT NORTH	1	1	0
VALDEZ	0	0	0	BURLINGTON	0	0	0	NEW MEXICO				DEL RIO	9	9	30
YAKUTAT	0	0	0	DES MOINES	0	0	0	ALBUQUERQUE	0	0	0	EL PASO	0	0	0
				DUBUQUE	0	0	0	CLAYTON	0	0	0	GALVESTON	0	0	47
				SIOUX CITY	0	0	0	ROSWELL	0	0	0	HOUSTON INTERCON	13	20	38
				WATERLOO	0	0	0					LUBBOCK	0	0	0
ARIZONA								NEW YORK				MIDLAND	0	0	0
FLAGSTAFF	0	0	0	KANSAS				ALBANY	0	0	0	PORT ARTHUR	17	21	42
PHOENIX	0	0	14	CONCORDIA	0	0	0	BINGHAMTON	0	0	0	SAN ANGELO	2	2	0
TUCSON	0	0	11	DODGE CITY	0	0	0	BUFFALO	0	0	0	SAN ANTONIO	12	16	24
WINSLOW	0	0	0	GOODLAND	0	0	0	NEW YORK U	0	0	0	VICTORIA	18	25	44
YUMA	0	0	46	TOPEKA	0	0	0	NEW YORK KENNEDY	0	0	0	WACO	1	1	6
				WICHITA	0	0	0	NEW YORK LA GUARDIA	0	0	0	WICHITA FALLS	2	2	0
ARKANSAS								ROCHESTER	0	0	0				
FORT SMITH	0	0	0	KENTUCKY				SYRACUSE	0	0	0	UTAH			
LITTLE ROCK	0	0	0	COVINGTON	0	0	0					MILFORD	0	0	0
NO. LITTLE ROCK	0	0	0	LEXINGTON	0	0	0	NORTH CAROLINA				SALT LAKE CITY	0	0	0
				LOUISVILLE	0	0	0	ASHEVILLE	0	0	0				
CALIFORNIA								CAPE HATTERAS R	0	0	0	VERMONT			
BAKERSFIELD	0	0	0	LOUISIANA				CHARLOTTE	0	0	0	BURLINGTON	0	0	0
BISHOP	0	0	0	BATON ROUGE	6	7	41	GREENSBORO	0	0	0				
BLUE CANYON	0	0	0	LAKE CHARLES	2	4	30	RALEIGH	0	0	0	VIRGINIA			
EUREKA U	0	0	0	NEW ORLEANS	14	14	63	WILMINGTON	2	2	9	LYNCHBURG	0	0	0
FRESNO	0	0	7	SHREVEPORT	8	8	10					NORFOLK	0	0	0
LONG BEACH	0	0	12					NORTH DAKOTA				RICHMOND	0	0	0
LOS ANGELES	0	0	24	MAINE				BISMARCK	0	0	0	ROANOK	0	0	0
LOS ANGELES U	0	0	0	CARIBOU	0	0	0	FARGO	0	0	0	WALLOPS ISLAND	0	0	0
MT SHASTA R	0	0	0	PORTLAND	0	0	0	WILLISTON	0	0	0				
OAKLAND	0	0	0									WASHINGTON			
RED BLUFF	0	0	0	MARYLAND				OHIO				OLYMPIA	0	0	0
SACRAMENTO	0	0	0	BALTIMORE	0	0	0	AKRON	0	0	0	QUILLAYUTE	0	0	0
SANDBERG R	0	0	0					CINCINNATI ABBE OB	0	0	0	SEATTLE	0	0	0
SAN DIEGO	0	0	10	MASSACHUSETTS				CLEVELAND	0	0	0	SEATTLE-TACOMA	0	0	0
SAN FRANCISCO	0	0	0	BLUE HILL OBS R	0	0	0	COLUMBUS	0	0	0	SPOKANE	0	0	0
SAN FRANCISCO U	0	0	0	BOSTON	0	0	0	DAYTON	0	0	0	STAMPEDE PASS R	0	0	0
SANTA MARIA	0	0	0	WORCESTER	0	0	0	MANSFIELD	0	0	0	WALLA WALLA U	0	0	10
STOCKTON	0	0	0					TOLEDO	0	0	0	YAKIMA	0	0	0
				MICHIGAN				YOUNGSTOWN	0	0	0				
COLORADO				ALPENA	0	0	0					WEST INDIES			
ALAMOSA	0	0	0	DETROIT	0	0	0	OKLAHOMA				SAN JUAN P.R.	393	819	610
COLORADO SPRINGS	0	0	0	DETROIT METRO	0	0	0	OKLAHOMA CITY	0	0	0				
DENVER	0	0	0	FLINT	0	0	0	TULSA	0	0	0	WEST VIRGINIA			
GRAND JUNCTION	0	0	0	GRAND RAPIDS	0	0	0					BECKLEY	0	0	0
PUEBLO	0	0	0	HUGHTON LAKE	0	0	0	OREGON				CHARLESTON	0	0	0
				LANSING	0	0	0	ASTORIA	0	0	0	ELKINS	0	0	0
CONNECTICUT				MUSKOGON	0	0	0	BURNS U	0	0	0	HUNTINGTON	0	0	0
BRIDGEPORT	0	0	0	SAULT STE MARIE	0	0	0	EUGENE	0	0	0	PARKERSBURG U	0	0	0
HARTFORD	0	0	0					MEDFORD	0	0	0				
				MINNESOTA				PENDLETON	0	0	0	WISCONSIN			
DELAWARE				DULUTH	0	0	0	PORTLAND	0	0	0	GREEN BAY	0	0	0
WILMINGTON	0	0	0	INTERNATIONAL FALLS	0	0	0	SALEM	0	0	0	LA CROSSE	0	0	0
				MINNEAPOLIS	0	0	0	SEXTON SUMMIT R	0	0	0	MADISON	0	0	0
DIST. OF COLUMBIA				ROCHESTER	0	0	0					MILWAUKEE	0	0	0
WASHINGTON DULLES	0	0	0	ST CLOUD	0	0	0	PACIFIC AREA							
WASHINGTON NATIONAL	0	0	0					GUAM TAGUAC R	344	735	725	WYOMING			
				MISSISSIPPI				JOHNSTON	304	642	688	CASPER	0	0	0
FLORIDA				JACKSON	2	2	31	KOROR R	463	979	942	CHAYENNE	0	0	0
APPALACHICOLA U	0	4	50	MERIDIAN	0	0	31	KWAJALEIN	467	969	961	LANDER	0	0	0
DAYTONA BEACH	28	34	96					MAJURU	454	961	944	SHERIDAN	0	0	0
JACK HYERS	80	132	197	MISSOURI				PAGO PAGO	465	967	908				
JACKSONVILLE	13	14	63	COLUMBIA REGIONAL	0	0	0	PUNAPU R	495	989	924				
KEY WEST	147	301	403	KANSAS CITY	0	0	0	TRUK MOEN ISLAND	489	1022	967				
MIAMI	81	171	266	ST JOSEPH	0	0	0	WAKE	354	746	748				
ORLANDO	31	57	138	ST LOUIS	0	0	0	YAP R	454	924	911				
PENSACOLA	2	2	64	SPRINGFIELD	0	0	0					PENNSYLVANIA			
TALLAHASSEE	2	2	61					ALLENTOWN	0	0	0				
TAMPA	36	64	147	MONTANA				ENKE	0	0	0				
WEST PALM BEACH	87	146	220	BILLINGS	0	0	0	HARRISBURG	0	0	0				
				GLASGOW	0	0	0	PHILADELPHIA	0	0	0				
GEORGIA				GREAT FALLS	0	0	0	PITTSBURGH	0	0	0				
ATHENS	0	0	0	HAYRE	0	0	0	SCRANTON	0	0	0				
ATLANTA	0	0	14	HELENA	0	0	0	WILLIAMSPORT	0	0	0				
AUGUSTA	0	0	22	KALISPELL	0	0	0					RHODE ISLAND			
COLUMBUS	2	2	24	MILES CITY	0	0	0	BLOCK ISLAND	0	0	0	PROVIDENCE	0	0	0
MACON	0	0	0	MISSOULA	0	0	0								
ROME	0	0	0												
SAVANNAH	5	5	33												



# STORM SUMMARY

FEBRUARY 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				φ ALL OTHER				
	NUMBER	DAYS	DEATHS	INJURIES	↑ DAMAGE	DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS									
Alabama								2				7	5																4	
Alaska										2		2	7	2																
Arizona	*																													
Arkansas								3							1	4			1	2	6									6
California																														
Colorado																														
Connecticut	*																													
Delaware																														
Florida																														
Georgia																														
Hawaii																														
Idaho												9	5																	
Illinois																														
Indiana	*																													
Iowa																														
Kansas	*																													
Kentucky		1	1		5																									
Louisiana								2	2																					
Maine	*											13	5	2																
Maryland & DC																														
Massachusetts	*																													
Michigan																														
Minnesota																														
Mississippi																														
Missouri																														
Montana																														
Nebraska	*																													
Nevada																														
New Hampshire	*																													
New Jersey																														
New Mexico	*																													
New York																														
North Carolina		1	1		3	5																								
North Dakota																														
Ohio																														
Oklahoma								3																						
Oregon												5	2	5	2															
Pacific	*																													
Pennsylvania																														
Puerto Rico																														
Rhode Island	*																													
South Carolina																														
South Dakota																														
Tennessee																														
Texas		2	2		1	5		2	6	2																				
Utah	*																													
Vermont	*																													
Virginia																														
Virgin Islands	*																													
Washington																														
West Virginia	*																													
Wisconsin																														
Wyoming																														

# RAWINSONDE DATA

Average monthly values

FEBRUARY 1970

ALBANY, NY 1012 MB										ALBUQUERQUE, NM 836 MB										AMARILLO, TX 851 MB										ANCHORAGE, AK 1007 MB										ANNETTE, AK 1002 MB									
Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb									
No of observations										No of observations										No of observations										No of observations										No of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg									
Speed m p.s.										Speed m p.s.										Speed m p.s.										Speed m p.s.										Speed m p.s.									
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind									
No of observations										No of observations										No of observations										No of observations										No of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg									
Speed m p.s.										Speed m p.s.										Speed m p.s.										Speed m p.s.										Speed m p.s.									
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind									
No of observations										No of observations										No of observations										No of observations										No of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg									
Speed m p.s.										Speed m p.s.										Speed m p.s.										Speed m p.s.										Speed m p.s.									
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind									
No of observations										No of observations										No of observations										No of observations										No of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C																																							





# RAWINSONDE DATA

Average monthly values

FEBRUARY 1976

Standard pressure surface mb	No. of observations	CLINT. MB 958 MB					CLINT. MB 958 MB					CLINT. MB 958 MB					CLINT. MB 958 MB					CLINT. MB 958 MB						
		Dynamic height meters	Temperature °C	Dew Point °C	Direction true in deg	Speed in mps	Dynamic height meters	Temperature °C	Dew Point °C	Direction true in deg	Speed in mps	Dynamic height meters	Temperature °C	Dew Point °C	Direction true in deg	Speed in mps	Dynamic height meters	Temperature °C	Dew Point °C	Direction true in deg	Speed in mps	Dynamic height meters	Temperature °C	Dew Point °C	Direction true in deg	Speed in mps		
1000	24	236	-12.7	-17.1	20	2.2	24	-9.9	-18.1	-20.4	1.5	24	1.9	-17.7	-23.4	1.1	24	1.1	-17.7	-17.9	21	3.0	24	210	-14.4	-17.4	34	2.9
950	24	280	-11.3	-15.7	20	1.2	24	9.78	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
900	24	320	-10.0	-14.4	20	0.8	24	1.418	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
850	24	360	-8.7	-13.0	20	0.5	24	1.891	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
800	24	400	-7.4	-11.7	20	0.3	24	2.364	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
750	24	440	-6.1	-10.4	20	0.2	24	2.819	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
700	24	480	-4.8	-9.1	20	0.1	24	3.274	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
650	24	520	-3.5	-7.8	20	0.0	24	3.739	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
600	24	560	-2.2	-6.5	20	0.0	24	4.204	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
550	24	600	-1.0	-5.2	20	0.0	24	4.669	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
500	24	640	0.3	-3.9	20	0.0	24	5.134	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
450	24	680	1.6	-2.6	20	0.0	24	5.599	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
400	24	720	2.9	-1.3	20	0.0	24	6.064	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
350	24	760	4.2	0.0	20	0.0	24	6.529	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
300	24	800	5.5	1.3	20	0.0	24	6.994	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
250	24	840	6.8	2.6	20	0.0	24	7.459	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
200	24	880	8.1	3.9	20	0.0	24	7.924	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
150	24	920	9.4	5.2	20	0.0	24	8.389	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0
100	24	960	10.7	6.5	20	0.0	24	8.854	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0	-17.4	-18.4	2.1	24	1.0

GREENSBORO, NC 958 MB										GLADSTONE 151, MEXICO 1016 MB										GLADSTONE 151, MEXICO 1016 MB										HUNTINGTON, WV 991 MB									
SFC	24	275	-3.0	-8.6	36	1.3	27	2.1	11.7	9.8	34	5.7	28	111	21.6	21.3	0.7	2.5	28	10	19.4	17.0	25	1.0	27	246	-4.7	-9.0	34	1.8									
1000	24	583	-2.2	-6.8	32	3.7	27	1.58	12.4	9.8	34	5.4	28	111	21.4	21.0	0.4	2.4	28	10	19.4	16.8	17	1.0	27	246	-4.7	-9.0	34	1.8									
950	24	583	-2.2	-6.8	32	3.7	27	1.58	12.4	9.8	34	5.4	28	111	21.4	21.0	0.4	2.4	28	10	19.4	16.8	17	1.0	27	246	-4.7	-9.0	34	1.8									
900	24	1.016	-1.8	-7.3	34	4.5	27	1.040	10.5	-2.9	32	4.1	28	1.020	19.3	15.2	0.8	6.1	24	1.046	14.3	12.4	12	3.6	27	1.009	-7.8	-8.0	25	4.3									
850	24	1.473	-1.3	-9.3	28	7.4	27	1.514	9.4	-2.9	32	4.1	28	1.519	18.8	11.2	0.8	6.1	24	1.528	11.5	9.5	13	3.2	27	1.461	-2.8	-9.0	27	8.4									
800	24	1.958	-1.3	-10.9	28	9.5	27	2.016	8.1	-11.2	25	3.3	28	2.034	14.7	4.3	0.8	6.1	24	2.033	9.6	8.0	15	3.2	27	1.942	-3.5	-9.9	27	8.6									
750	24	2.470	-3.3	-13.0	26	11.7	27	2.516	5.2	-13.2	25	4.2	28	2.579	1.7	-2.7	0.8	6.1	24	2.566	6.6	-9.9	17	3.1	27	2.441	-4.9	-13.1	28	10.5									
700	24	3.000	-5.1	-17.4	24	14.7	27	3.105	1.1	-16.3	23	5.2	28	3.157	1.7	-7.5	0.7	6.1	24	3.130	3.9	-16.6	14	2.7	27	2.992	-7.0	-16.3	28	12.5									
650	24	3.594	-8.0	-24.0	28	17.3	27	3.699	-18.9	-19.9	29	6.4	28	3.771	8.2	-12.0	0.6	6.1	24	3.730	1.6	-10.9	24	3.1	27	3.567	-10.0	-19.1	28	14.6									
600	24	4.212	-11.5	-23.5	28	20.5	27	4.330	-6.2	-23.9	27	5.8	28	4.427	4.6	-16.0	0.5	6.1	24	4.371	-1.8	-14.8	26	5.7	27	4.180	-13.5	-21.7	28	16.4									
550	24	4.874	-15.6	-25.8	28	23.6	27	5.005	-10.6	-28.6	27	9.9	28	5.130	4.4	-19.4	0.4	6.1	24	5.059	-5.7	-18.6	25	8.4	27	4.836	-17.3	-26.4	28	19.7									
500	24	5.586	-20.3	-29.7	28	27.1	27	5.732	-15.4	-33.3	26	13.9	28	5.862	-4.6	-24.5	0.3	6.1	24	5.800	-10.5	-23.1	25	11.1	27	5.586	-21.9	-31.1	28	22.7									
450	24	6.360	-24.8	-34.8	28	31.2	27	6.517	-20.8	-37.6	26	15.5	28	6.705	-9.7	-28.6	0.2	6.1	24	6.603	-15.8	-26.7	25	13.1	27	6.316	-24.5	-34.3	28	25.1									
400	24	7.208	-30.4	-41.4	27	32.4	27	7.377	-26.7	-41.6	26	18.6	28	7.607	-15.8	-33.7	0.1	6.1	24	7.480	-22.2	-33.3	26	15.8	27	7.155	-32.1	-41.2	28	27.0									
350	24	8.147	-37.6	-48.6	27	37.0	26	8.330	-33.8	-46.5	26	21.5	28	8.624	-22.4	-39.1	0.4	6.1	24	8.481	-29.0	-38.6	26	21.0	27	8.089	-36.7	-46.7	28	35.8									
300	24	9.194	-48.8	-57.6	27	37.3	26	9.789	-41.9	-49.5	26	23.0	28	9.714	-31.1	-46.9	0.1	6.1	24	9.533	-36.9	-44.1	25	25.2	27	9.131	-45.0	-55.7	28	42.2									
250	24	10.394	-51.9	-58.6	27	38.6	25	10.601	-50.6	-58.6	27	23.3	28	10.979	-31.3	-54.3	0.2	6.1	24	10.771	-45.4	-54.4	26	32.7	27	10.328	-52.7	-58.7	28	42.2									
200	24	11.825	-55.2	-58.2	26	43.3	25	12.029	-58.2	-58.2	26	24.7	28	12.456	-53.3	-53.3	0.2	6.1	24	12.244	-55.5	-55.5	26	37.0	27	11.755	-55.5	-55.5	28	45.7									
150	24	12.975	-56.6	-56.6	26	37.4	25	12.866	-59.7	-59.7	26	25.0	28	13.170	-60.2	-60.2	0.2	6.1	24	13.063	-60.5	-60.5	26	34.8	27	12.600	-55.7	-55.7	28	40.3									
100	24	13.651	-57.1	-57.1	26	35.5	25	13.827	-61.1	-61.1	27	22.8	28	14.246	-66.1	-66.1	0.2	6.1	24	14.010	-66.1	-66.1	26	32.3	27	13.588	-55.8	-55.8	28	34.7									
50	24	14.798	-59.9	-59.9	26	30.5	25	14.952	-63.5	-63.5	27	21.5	28	15.321	-75.7	-75.7	0.1	6.1	24	15.100	-71.4	-71.4	27	26.1	24	14.749	-58.4	-58.4	27	31.8									
0	24	16.181	-62.6	-62.6	26	22.4	25	16.132	-66.4	-66.4	27	18.4	28	16.587	-82.0	-82.0	0.9	6.1	24	16.407	-75.4	-75.4	27	16.5	23	16.139	-61.1	-61.1	26	25.3									
50	24	17.558	-63.4	-63.4	26	22.0	24	17.458	-67.2	-67.2	27	12.7	28	17.838	-82.1	-82.1	0.8	6.1	24	17.706	-74.8	-74.8	27	8.1	22	17.517	-61.0	-61.0	27	22.0									
0	24	18.381	-62.4	-62.4	26	17.6	24	18.466	-64.5	-64.5	27	11.4	28	18.591	-77.1	-77.1	0.8	6.1	24	18.466	-72.2	-72.2	27	4.8	22	18.346	-61.1	-61.1	27	18.1									
0	24	19.374	-61.5	-61.5	26	12.0	24	19.452	-73.8	-73.8	27	8.4	28	19.597	-81.6	-81.6	0.7	6.1	24	19.452	-73.8	-73.8	27	8.4	22	19.306	-60.8	-60.8	27	15.1									
0	24	20.470	-59.4	-59.4	26	9.3	24	20.522	-62.2	-62.2	27	5.7	28	20.651	-68.7	-68.7	0.7	6.1	24	20.504	-65.0	-65.0	10	1.9	21	20.448	-58.4	-58.4	26	13.3									
0	24	21.872	-58.0	-58.0	27	3.7	23	21.912	-59.8	-59.8	27	3.1	26	21.915	-63.7	-63.7	1.2	1.5	21	21.877	-61.0	-61.0	09	5.2	20	21.857	-55.5	-55.5	26	10.3									
0	24	23.695	-55.6	-55.6	18	2.4	22	23.715	-57.8	-57.8	26	2.3	26	23.707	-55.9	-55.9	1.0	6.1	16	23.684	-57.1	-57.1	08	7.1	18	23.687	-55.6	-55.6	25	8.0									
25	24	24.850	-54.7	-54.7	18	1.2	21	24.874	-55.9	-55.9	26	1.8	26	24.865	-55.9	-55.9	0.6	16.1	15	24.846	-55.5	-55.5	08	9.0	18	24.852	-54.2	-54.2	25	3.6									
0	24	26.033	-52.7	-52.7	14	0.8	20	26.052	-52.7	-52.7	27	4.8	17	26.042	-52.7	-52.7	0.8	16.1	12	26.042	-52.7	-52.7	09	9.1	18	26.042	-52.7	-52.7	14	1.6									
15	24	28.166	-45.0	-45.0	11	7.2	8	28.119	-51.5	-51.5	27	28	28.169	-46.3	-46.3	0.6	10.9	8	28.119	-51.2	-51.2	09	10.3	18	28.176	-49.4	-49.4	14	1.6										
10	15	30.822	-47.9	-47.9	10	12	30.868	-42.9	-42.9	27	12	30.868	-42.9	-42.9	0.6	10.9	8	30.868	-42.9	-42.9	09	10.3	18	30.886	-47.5	-47.5	14	1.6											



# RAWINSONDE DATA

Average monthly values

FEBRUARY 1979

KATZBERG, AR 1027 MB										LANE CHARLES, LA 1020 MB									
No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters
1000	167	18.7	15.4	5	2.7	1000	167	18.7	15.4	5	2.7	1000	167	18.7	15.4	5	2.7	1000	167
900	157	18.4	14.3	07	3.6	900	157	18.4	14.3	07	3.6	900	157	18.4	14.3	07	3.6	900	157
800	151	17.2	13.6	07	3.6	800	151	17.2	13.6	07	3.6	800	151	17.2	13.6	07	3.6	800	151
700	143	16.7	12.8	07	3.6	700	143	16.7	12.8	07	3.6	700	143	16.7	12.8	07	3.6	700	143
600	134	15.9	11.9	07	3.6	600	134	15.9	11.9	07	3.6	600	134	15.9	11.9	07	3.6	600	134
500	126	15.3	11.4	07	3.6	500	126	15.3	11.4	07	3.6	500	126	15.3	11.4	07	3.6	500	126
400	119	14.9	11.0	07	3.6	400	119	14.9	11.0	07	3.6	400	119	14.9	11.0	07	3.6	400	119
300	113	14.5	10.6	07	3.6	300	113	14.5	10.6	07	3.6	300	113	14.5	10.6	07	3.6	300	113
200	107	14.1	10.2	07	3.6	200	107	14.1	10.2	07	3.6	200	107	14.1	10.2	07	3.6	200	107
100	101	13.7	9.8	07	3.6	100	101	13.7	9.8	07	3.6	100	101	13.7	9.8	07	3.6	100	101

KATZBERG, AR 1027 MB										LANE CHARLES, LA 1020 MB									
No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	No. of observations	Dynamic height meters
1000	167	18.7	15.4	5	2.7	1000	167	18.7	15.4	5	2.7	1000	167	18.7	15.4	5	2.7	1000	167
900	157	18.4	14.3	07	3.6	900	157	18.4	14.3	07	3.6	900	157	18.4	14.3	07	3.6	900	157
800	151	17.2	13.6	07	3.6	800	151	17.2	13.6	07	3.6	800	151	17.2	13.6	07	3.6	800	151
700	143	16.7	12.8	07	3.6	700	143	16.7	12.8	07	3.6	700	143	16.7	12.8	07	3.6	700	143
600	134	15.9	11.9	07	3.6	600	134	15.9	11.9	07	3.6	600	134	15.9	11.9	07	3.6	600	134
500	126	15.3	11.4	07	3.6	500	126	15.3	11.4	07	3.6	500	126	15.3	11.4	07	3.6	500	126
400	119	14.9	11.0	07	3.6	400	119	14.9	11.0	07	3.6	400	119	14.9	11.0	07	3.6	400	119
300	113	14.5	10.6	07	3.6	300	113	14.5	10.6	07	3.6	300	113	14.5	10.6	07	3.6	300	113
200	107	14.1	10.2	07	3.6	200	107	14.1	10.2	07	3.6	200	107	14.1	10.2	07	3.6	200	107
100	101	13.7	9.8	07	3.6	100	101	13.7	9.8	07	3.6	100	101	13.7	9.8	07	3.6	100	101

# RAWINSONDE DATA

Average monthly values

FTW 0000 1976

PORTLET, MO 968 MB										NASHVILLE, TN 1000 MB										KEMP, MO 1025 MB										NORTH PLATTE, NE 918 MB										OAKLAND, CA 1019 MB									
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed mps							
2FC	28	438	-4.1	-7.6	12	6	28	180	-1.4	-3.8	04	4	28	5	-18.7	-26.0	08	2	28	847	-11.8	-14.6	04	6	28	8	7.6	5.4	18	8	28	160	7.6	5.4	18	8	28	160	7.6	5.4	18	8							
1000	28	1015	-4	-8.1	25	5	28	222	-8.8	-1.1	01	4	28	185	-12.7	-22.2	08	7	28	185	-12.7	-22.2	08	7	28	185	-12.7	-22.2	08	7	28	185	-12.7	-22.2	08	7	28	185	-12.7	-22.2	08	7							
950	28	583	-2.3	-6.6	21	1.3	28	586	-7	-4.7	24	3.1	28	581	-12.0	-24.5	08	5	28	581	-12.0	-24.5	08	5	28	581	-12.0	-24.5	08	5	28	581	-12.0	-24.5	08	5	28	581	-12.0	-24.5	08	5							
900	28	1476	-1.5	-14.2	28	6.7	28	1476	-1.5	-14.2	28	6.7	28	1476	-1.5	-14.2	28	6.7	28	1476	-1.5	-14.2	28	6.7	28	1476	-1.5	-14.2	28	6.7	28	1476	-1.5	-14.2	28	6.7	28	1476	-1.5	-14.2	28	6.7							
850	28	1963	-2	-14.9	28	7.9	28	1963	-1.8	-11.7	28	8.8	28	1897	-12.5	-23.1	08	4	28	1902	-7.3	-10.7	28	4.4	28	1902	-7.3	-10.7	28	4.4	28	1902	-7.3	-10.7	28	4.4	28	1902	-7.3	-10.7	28	4.4							
800	28	2479	-1.7	-16.5	28	9.6	28	2473	-7.2	-14.6	28	10.2	28	2488	-14.6	-26.8	08	4	28	2444	-4.1	-14.7	28	6.2	28	2444	-4.1	-14.7	28	6.2	28	2444	-4.1	-14.7	28	6.2	28	2444	-4.1	-14.7	28	6.2							
750	28	3024	-5.1	-18.2	28	11.1	28	3017	-6.5	-16.4	28	11.5	28	2995	-16.4	-28.7	08	4	28	2985	-7.4	-18.7	28	11.2	28	2985	-7.4	-18.7	28	11.2	28	2985	-7.4	-18.7	28	11.2	28	2985	-7.4	-18.7	28	11.2							
700	28	3673	-8.1	-21.9	28	13.2	28	3596	-8.4	-20.0	28	14.3	28	3443	-15.0	-24.6	08	4	28	3444	-10.4	-21.0	28	11.5	28	3423	-8.3	-19.6	28	10.5	28	3423	-8.3	-19.6	28	10.5	28	3423	-8.3	-19.6	28	10.5							
650	28	4221	-11.2	-25.6	28	15.9	28	4216	-11.4	-24.4	28	16.9	28	4166	-22.1	-34.5	08	4	28	4168	-15.1	-27.7	28	13.1	28	4168	-15.1	-27.7	28	13.1	28	4168	-15.1	-27.7	28	13.1	28	4168	-15.1	-27.7	28	13.1							
600	28	4883	-15.8	-28.8	28	18.5	28	4880	-15.6	-27.2	28	20.7	28	4700	-26.1	-37.4	08	4	28	4821	-12.1	-24.6	28	14.5	28	4809	-16.7	-27.2	28	11.9	28	4809	-16.7	-27.2	28	11.9	28	4809	-16.7	-27.2	28	11.9							
550	28	5595	-20.5	-31.3	27	21.8	27	5594	-20.0	-32.0	27	23.9	27	5374	-30.6	-48.8	08	4	27	5523	-23.8	-31.4	27	16.3	27	5489	-21.6	-32.4	27	15.0	27	5489	-21.6	-32.4	27	15.0	27	5489	-21.6	-32.4	27	15.0							
500	28	6367	-25.6	-35.4	27	24.3	27	6367	-24.9	-34.1	27	27.4	27	6114	-35.8	-54.4	08	4	27	6264	-29.0	-34.5	27	17.3	27	6377	-27.0	-37.4	27	18.0	27	6377	-27.0	-37.4	27	18.0	27	6377	-27.0	-37.4	27	18.0							
450	28	7211	-31.5	-41.7	27	26.3	27	7215	-30.5	-38.9	27	31.3	27	6923	-41.7	-64.5	08	4	27	7120	-38.4	-41.0	27	18.6	27	7215	-33.5	-42.8	27	18.7	27	7215	-33.5	-42.8	27	18.7	27	7215	-33.5	-42.8	27	18.7							
400	28	8146	-36.3	-43.4	27	30.4	27	8154	-37.1	-43.0	27	35.1	27	7819	-48.0	-70.6	08	4	27	8035	-42.1	-42.8	27	21.3	27	8144	-40.1	-42.1	27	20.4	27	8144	-40.1	-42.1	27	20.4	27	8144	-40.1	-42.1	27	20.4							
350	28	9106	-46.2	-46.8	28	34.4	28	9198	-46.3	-43.7	27	35.1	28	8817	-58.7	-79.7	08	4	27	9127	-48.6	-48.2	28	35.1	28	9173	-47.8	-48.8	28	32.1	28	9173	-47.8	-48.8	28	32.1	28	9173	-47.8	-48.8	28	32.1							
300	28	10374	-53.8	-53.8	28	39.1	27	10393	-53.5	-51.5	27	41.8	28	9971	-68.6	-81.5	08	4	27	10239	-55.7	-55.7	27	40.9	27	10363	-54.9	-54.9	27	40.7	27	10363	-54.9	-54.9	27	40.7	27	10363	-54.9	-54.9	27	40.7							
250	28	11790	-57.4	-57.4	27	39.5	27	11811	-57.5	-57.5	26	43.7	28	11384	-63.4	-81.5	08	4	27	11653	-58.4	-58.4	27	39.2	27	11770	-59.4	-59.4	28	45.2	28	11770	-59.4	-59.4	28	45.2	28	11770	-59.4	-59.4	28	45.2							
200	28	12635	-56.8	-56.8	27	37.1	27	12654	-57.0	-57.0	27	41.1	28	12384	-61.5	-81.5	08	4	27	12501	-55.7	-55.7	27	39.5	28	12605	-59.4	-59.4	28	45.9	28	12605	-59.4	-59.4	28	45.9	28	12605	-59.4	-59.4	28	45.9							
150	28	13612	-57.2	-57.2	27	31.9	27	13625	-58.5	-58.5	27	35.2	28	13251	-60.1	-81.5	08	4	27	13484	-59.7	-59.7	27	35.0	28	13575	-57.8	-57.8	28	42.6	28	13575	-57.8	-57.8	28	42.6	28	13575	-57.8	-57.8	28	42.6							
100	28	14761	-62.0	-62.0	27	28.0	27	14760	-62.2	-62.2	27	32.7	28	14405	-69.2	-81.5	08	4	27	14842	-67.2	-67.2	27	32.2	28	14922	-65.1	-65.1	27	31.6	27	14922	-65.1	-65.1	27	31.6	27	14922	-65.1	-65.1	27	31.6							
50	28	16150	-62.0	-62.0	27	22.9	25	16146	-61.1	-61.1	27	25.4	28	15912	-68.4	-81.5	08	4	27	16094	-59.7	-59.7	27	19.0	28	16115	-60.6	-60.6	27	15.9	27	16115	-60.6	-60.6	27	15.9	27	16115	-60.6	-60.6	27	15.9							
0	28	17529	-62.8	-62.8	27	16.9	24	17516	-64.1	-64.1	27	19.0	28	17376	-67.4	-81.5	08	4	27	17448	-59.4	-59.4	27	14.9	28	17504	-60.9	-60.9	27	11.5	27	17504	-60.9	-60.9	27	11.5	27	17504	-60.9	-60.9	27	11.5							
28	28	18350	-62.7	-62.7	27	14.1	24	18335	-63.4	-63.4	27	15.8	28	18259	-67.1	-81.5	08	4	27	18283	-59.4	-59.4	27	14.1	28	18334	-60.6	-60.6	28	8.8	28	18334	-60.6	-60.6	28	8.8	28	18334	-60.6	-60.6	28	8.8							
24	28	19303	-61.9	-61.9	26	11.9	24	19284	-62.4	-62.4	27	12.8	26	19281	-66.5	-81.5	08	4	27	19249	-59.0	-59.0	27	11.8	28	19297	-59.6	-59.6	28	6.3	28	19297	-59.6	-59.6	28	6.3	28	19297	-59.6	-59.6	28	6.3							
20	28	20434	-60.4	-60.4	26	7.7	24	20416	-60.5	-60.5	26	9.4	28	20494	-65.7	-81.5	08	4	27	20394	-58.4	-58.4	27	8.7	28	20440	-58.9	-58.9	28	3.0	28	20440	-58.9	-58.9	28	3.0	28	20440	-58.9	-58.9	28	3.0							
16	28	21589	-59.4	-59.4	26	3.4	24	21568	-59.5	-59.5	26	6.0	28	21581	-65.1	-81.5	08	4	27	21611	-57.4	-57.4	27	5.9	28	21756	-57.8	-57.8	28	0.7	28	21756	-57.8	-57.8	28	0.7	28	21756	-57.8	-57.8	28	0.7							
12	28	23646	-58.1	-58.1	26	4.0	24	23623	-58.9	-58.9	25	2.6	28	23498	-64.7	-81.5	08	4	27	23629	-56.4	-56.4	27	3.4	28	23662	-56.8	-56.8	28	0.4	28	23662	-56.8	-56.8	28	0.4	28	23662	-56.8	-56.8	28	0.4							
8	28	24792	-56.8	-56.8	24	2.5	24	24782	-56.9	-56.9	27	2.0	28	25115	-64.5	-81.5	08	4	27	24784	-56.4	-56.4	27	1.0	28	24829	-55.7	-55.7	28	0.5	28	24829	-55.7	-55.7	28	0.5	28	24829	-55.7	-55.7	28	0.5							
4	28	26214	-54.8	-54.8	23	2.1	24	26210	-53.8	-53.8	27	1.8	28	26594	-64.7	-81.5	08	4	27	26199	-55.0	-55.0	27	2.1	28	26294	-56.4	-56.4	28	0.6	28	26294	-56.4	-56.4	28	0.6	28	26294	-56.4	-56.4	28	0.6							
0	28	28052	-54.8	-54.8	11	2.8	23	28073	-51.8	-51.8	18	2.7	28	28157	-65.2	-81.5	08	4	27	28056	-51.5	-51.5	26	3.1	28	28111	-52.6	-52.6	28	0.6	28	28111	-52.6	-52.6	28	0.6	28	28111	-52.6	-52.6	28	0.6							
10	28	30738	-48.5	-48.5	15	3.7	24	30704	-48.1	-48.1	23	5.0	28	30717	-65.2	-81.5	08	4	27	30707	-47.2	-47.2	27	8	28	30768	-46.9	-46.9	28	0.7	28	30768	-46.9	-46.9	28	0.7	28	30768	-46.9	-46.9	28	0.7							

ONAHVA, NE 973 MB										PAGO PAGO, AMERICAN SAMOA 1011 MB										PEORIA, IL 994 MB	
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## Average monthly values

FEBRUARY 1979

* TULSA, AZ 9.6 MG										* VANLEIRN AFB, CA 10CR MR										* VICTORIA, TX 1015 MR										* WAKE IS., PACIFIC AREA 1016 MR										* WALLPOLS ISLAND, VA NASA 1020 MR									
8FC	2	789	6.4	-4.4	16	2.4	26	100	8.4	4.7	76	1	2P	73	8.3	7.2	04	2.1	28	5	23.0	19.9	08	3.7	28	4	-3.8	-8.6	33	3.3																			
10CR							28	165	9.5	5.6	21	5	7.2P	157	9.4	7.4	07	28	139	23.0	18.1	08	5.2	28	163	-3	-8.3	-33	5.0																				
9FC							28	291	6.4	3.4	23	2.3	28	583	9.4	5.6	17	3.8	28	585	19.3	16.3	08	6.3	28	569	-3.2	-10.0	31	6.0																			
8FC	2	1,227	10.0	-4.4	17	2.2	24	1,039	8.1	-3.7	32	2.4	28	1,073	10.0	2.0	20	3.8	28	1,049	16.2	12.4	09	6.0	28	997	-3.3	-11.1	30	8.8																			
8FC	2	1,501	8.2	-4.7	21	2.1	24	1,591	5.9	-7.1	32	3.6	28	1,509	9.3	-1.4	27	4.6	28	1,533	13.5	7.8	09	5.1	28	1,449	-3.9	-13.1	29	10.6																			
8FC	2	1,999	5.0	-7.7	24	3.1	24	2,074	7.7	-11.0	29	5.3	28	2,010	7.6	-7.6	26	7.6	28	2,043	11.7	-4.0	09	4.3	28	1,928	-4.6	-14.2	29	12.7																			
750		2,352	-11.0	2.4	24	2.4	24	2,526	-11.0	-1.6	48	2.4	28	2,502	-11.7	2.4	28	2,502	-11.7	-7.0	11	2.5	28	2,455	-5.5	-17.6	14	16.9																					
750		3,075	-1.2	-16.9	27	5.6	28	3,074	-2.3	-19.3	26	8.1	28	3,101	2.9	-13.7	26	9.4	28	3,155	9.0	-10.7	04	1.1	28	2,973	-1.6	-19.7	27	16.6																			
600	2	3,662	-4.6	-20.3	27	7.7	27	3,660	-5.9	-22.5	27	9.1	28	3,698	-4.3	-15.5	26	11.5	28	3,765	5.7	-14.4	24	4.8	3,545	-11.3	-22.3	27	19.7																				
600	4	4,287	-4.6	-25.0	27	9.6	28	4,282	-6.9	-25.5	27	10.9	28	4,713	-4.4	-18.8	26	14.8	28	4,914	1.6	-18.2	20	1.4	4,155	-14.6	-25.1	27	22.6																				
500	2	4,996	-13.3	-27.7	27	12.0	25	4,947	-14.5	-28.7	27	12.9	28	5,113	-8.9	-22.2	26	16.5	28	5,109	-2.9	-21.9	28	3.7	28	4,810	-16.3	-28.8	28	24.5																			
500	2	5,086	-16.0	-31.1	27	15.0	28	5,047	-19.5	-31.7	27	15.0	28	5,744	-19.9	-26.9	26	19.2	28	5,857	-7.9	-26.9	28	8.0	28	5,515	-22.9	-32.4	28	26.9																			
400	2	5,984	-17.1	-31.7	28	18.2	28	5,944	-25.5	-35.0	27	16.1	28	6,537	-19.9	-31.0	26	21.1	28	6,667	-13.5	-31.7	28	26.5	5	6,266	-26.9	-37.0	28	40.9																			
400	2	7,300	-26.7	-44.2	27	21.5	28	7,251	-31.6	-44.1	27	17.4	28	7,453	-25.1	-37.9	26	24.3	28	7,553	-19.2	-36.9	29	13.0	28	7,117	-33.0	-42.5	28	37.1																			
300	2	8,243	-26.3	-47.3	26	24.4	28	8,215	-38.4	-44.4	26	18.9	28	8,360	-32.6	-43.3	27	27.2	28	8,537	-25.4	-41.7	29	16.8	28	8,049	-38.5	-45.0	28	43.8																			
300	2	9,291	-44.1	-5	26	28.8	25	9,256	-48.8	-6	28	20.4	28	9,425	-41.0	-47.9	26	37.7	28	9,368	-32.1	-47.7	29	22.8	28	9,091	-44.8	-28	49.4																				
200	2	10,489	-53.5	-10	24	32.4	25	10,451	-53.1	-11	28	20.4	28	10,641	-50.1	-56.9	26	39.1	28	10,902	-47.7	-58.0	29	25.7	28	10,292	-51.4	-28	51.3																				
200	2	11,907	-57.8	-18	27	31.8	28	11,869	-58.0	-19	28	20.4	28	12,073	-54.9	-61.7	26	46.3	28	12,334	-51.6	-62.9	29	26.5	5	11,728	-54.6	-28	56.9																				
150	2	12,746	-59.1	-27	27	28.1	27	12,700	-59.3	-31	26	26.7	28	12,909	-60.1	-67.0	26	39.6	28	13,236	-58.6	-65.6	29	26.3	18	12,582	-59.9	27	43.9																				
150	2	13,712	-59.7	-37	27	27.8	27	13,666	-59.6	-40	27	26.7	28	13,867	-62.0	-69.1	26	38.1	28	14,189	-66.2	-73.3	29	25.2	28	13,566	-55.7	-27	40.5																				
100	2	14,847	-60.6	-47	27	29.6	27	14,806	-60.1	-51	27	23.1	28	14,995	-65.5	-72.6	26	37.4	28	15,274	-73.7	-80.8	29	21.9	28	14,721	-58.2	-27	35.9																				
100	2	16,216	-60.7	-57	27	20.6	27	16,191	-62.2	-64	26	18.4	27	16,326	-69.1	-76.2	26	24.7	28	16,596	-79.1	-86.2	29	13.5	27	16,125	-60.4	-27	29.4																				
100	2	17,581	-60.1	-67	26	18.1	24	17,561	-62.1	-72	26	14.7	27	17,655	-69.2	-76.3	26	18.1	25	17,824	-80.7	-87.8	29	5.7	27	17,513	-61.2	-27	23.1																				
75	2	18,457	-61.8	-77	26	13.8	26	18,396	-62.0	-82	26	1.4	25	18,582	-68.6	-75.7	26	12.7	25	18,757	-73.6	-80.7	29	12.7	25	18,344	-59.3	-27	18.6																				
75	2	19,181	-63.8	-87	27	10.1	26	19,341	-61.2	-92	26	8.5	25	19,381	-66.1	-73.2	26	9.5	25	19,470	-73.6	-80.7	29	1.3	26	19,305	-59.7	-27	13.8																				
75	2	20,459	-62.3	-97	27	5.6	25	20,474	-59.7	-107	27	3.8	25	20,496	-62.4	-69.5	25	6.4	24	20,554	-68.3	-75.4	12	2.8	26	20,451	-58.2	-27	9.5																				
75	2	21,844	-59.6	-107	26	4.1	25	21,871	-59.7	-117	31	2.4	24	21,896	-62.0	-69.1	25	4.4	24	21,914	-62.5	-69.6	10	4.2	26	21,860	-57.0	-28	5.8																				
75	2	23,650	-57.9	-117	28	1.9	24	23,686	-56.7	-127	31	1.9	21	23,695	-57.9	-65.0	25	2.1	24	23,704	-58.4	-65.6	09	5.6	25	23,687	-52.3	-28	2.4																				
75	2	24,940	-58.4	-127	26	1.5	24	24,985	-56.2	-137	31	1.5	20	24,994	-58.4	-65.6	25	1.5	24	24,998	-58.4	-65.6	09	6.3	24	24,858	-55.7	-28	1.9																				
75	2	26,221	-54.6	-137	26	2.5	24	26,274	-54.6	-147	31	2.2	19	26,271	-54.6	-61.2	23	1.3	23	26,293	-53.2	-60.3	07	6.0	24	26,271	-52.3	-28	1.5																				
75	1	28,051	-52.6	-147	33	0.9	19	28,107	-53.8	-157	33	3.1	18	28,125	-51.8	-58.4	23	1.7	22	28,156	-50.3	-57.4	07	7.0	19	28,174	-50.4	-11	3.0																				
15	1	30,351	-48.6	-157	33	3.5	18	30,379	-49.1	-167	33	3.5	18	30,391	-48.6	-55.2	25	6.9	21	30,421	-45.3	-52.4	08	6.0	13	30,833	-47.6	-24	4.4																				

## Average monthly values

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# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

FEBRUARY 1979

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
MAUNA LOA OBSERVATORY, HI									
	Air mass								
	3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34
22----	1.26	1.33	1.50	1.54	----	----	----	----	----
23----	1.31	1.37	1.43	1.52	----	----	----	----	----
24----	1.20	1.28	1.38	1.50	----	----	----	----	----
27----	1.18	1.26	1.35	1.53	----	----	----	----	----
Aver- ages	1.24	1.31	1.42	1.52	----	----	----	----	----

Date	Sun's zenith distance								
	A.M.				*	P.M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
TUCSON, AZ									
	Air mass								
	4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
1-----	----	----	----	1.41	----	1.44	----	----	----
2-----	----	----	----	1.41	1.49	1.41	1.25	----	----
4-----	----	----	----	----	1.46	----	----	----	----
6-----	.97	1.08	1.22	1.40	1.50	1.38	1.25	1.14	1.04
13-----	1.04	1.14	1.25	1.37	1.45	1.31	1.15	1.03	.96
14-----	1.01	1.09	1.21	1.36	1.44	----	----	----	----
15-----	.97	1.07	1.18	1.33	1.39	1.24	1.10	.97	.89
16-----	----	----	1.13	1.25	1.42	1.31	1.15	1.04	.96
17-----	.98	1.09	1.19	1.34	1.43	1.28	1.14	1.03	.95
18-----	1.03	1.13	1.24	1.38	1.49	----	----	----	----
19-----	----	----	1.18	----	----	----	----	----	----
21-----	----	----	1.14	1.29	1.42	----	----	----	----
22-----	----	----	----	----	----	1.29	1.14	1.02	.89
23-----	.89	1.02	1.14	1.30	----	1.32	----	----	----
24-----	.99	1.09	1.19	1.36	----	----	----	----	----
25-----	1.07	1.16	1.26	1.39	1.48	1.36	1.21	1.11	1.02
26-----	----	----	----	* .73	----	1.30	1.13	1.01	.91
27-----	.63	.76	.94	1.21	1.41	1.30	1.15	.99	.90
28-----	.93	1.04	1.16	1.32	----	----	----	----	.90
Aver- ages	.96	1.06	1.17	1.34	1.45	1.33	1.17	1.04	.94

\* Solar Eclipse (Not included in average).

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . .	- 4	- 2	-17	-12	-31	-62	-63	-62	-60	-58	-46	-36	-27	-30	-35	-36	-12	-23	-17	-23	-14	-17	-16	-19	-29	-16	-11	-14				-28

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$

5

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

Ø Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

Ø Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

# No Storm Data Report received for this State.

<> Report Incomplete.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

\* Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( ) Clouds Present	DM Moderate Dust	HM Moderate Haze	KS Slight Smoke
* Values corresponding to true solar noon	DS Slight Dust	HS Slight Haze	M Moderate Haze-indeter-
BD Blowing Dust	F Fog	I Intense Haze-indeterminable	minable
BN Blowing Sand	GF Ground Fog	K Smoke	N Sand
D Dust	H Haze	KI Intense Smoke	S Slight Haze-indeter-
DI Intense Dust	HI Intense Haze	KM Moderate Smoke	minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

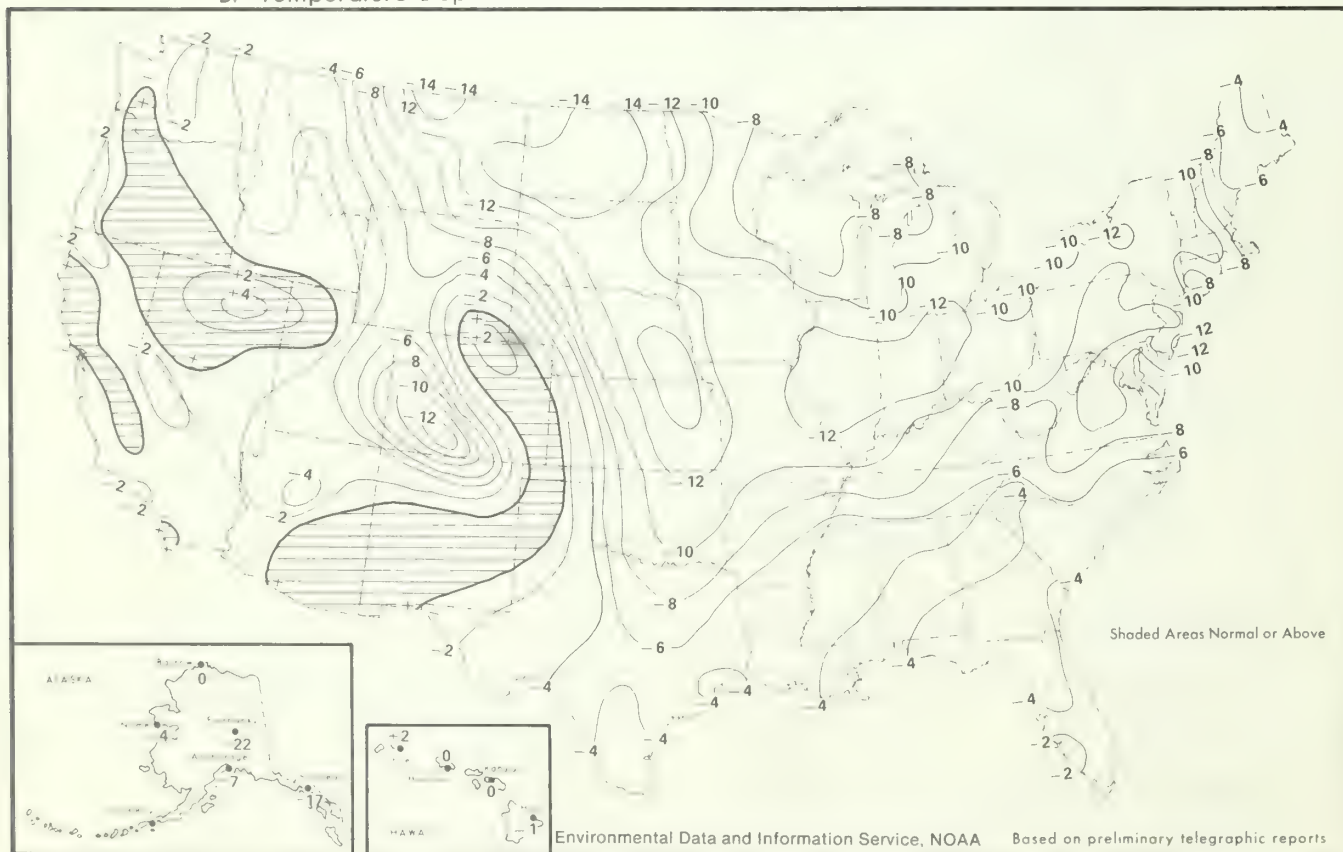
These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), February.



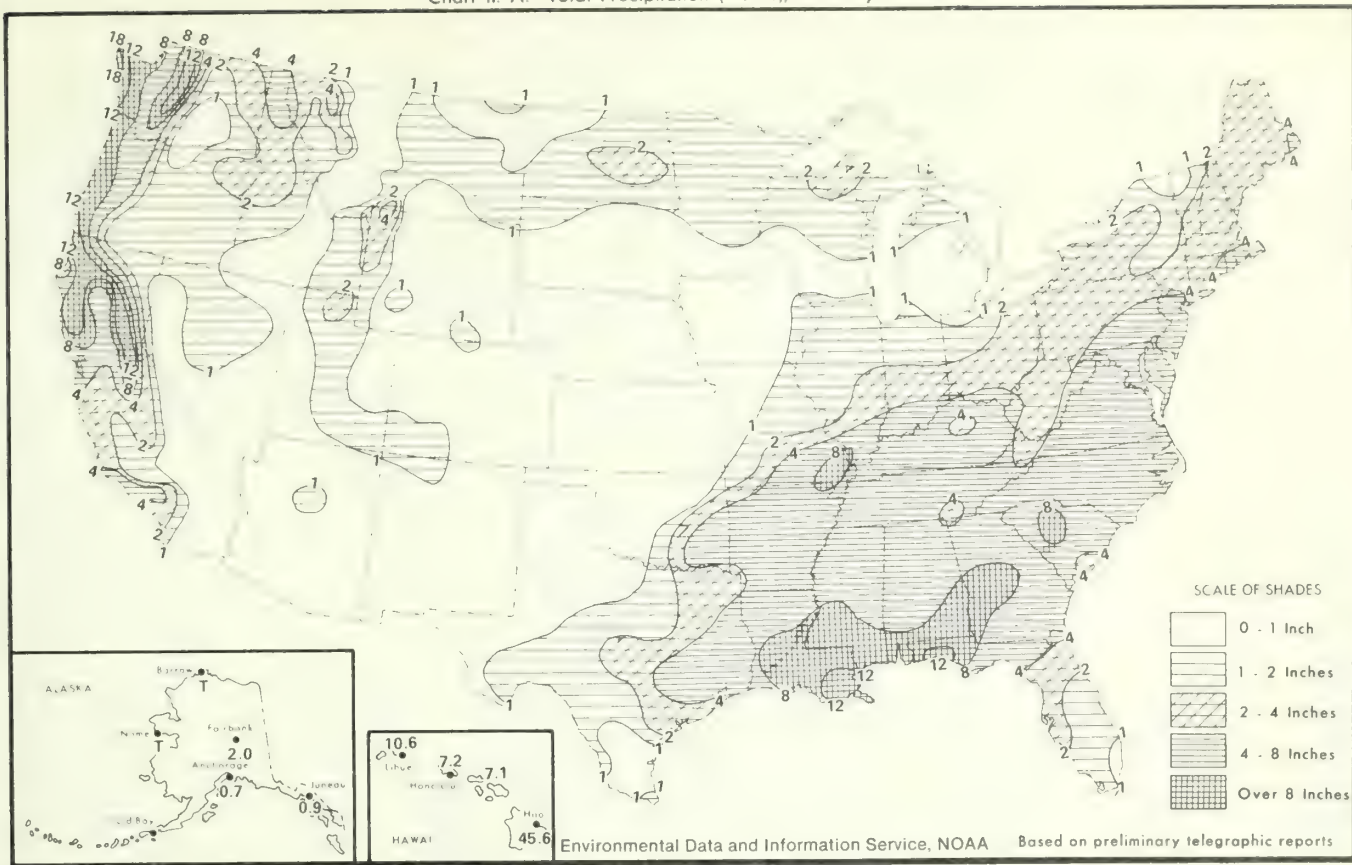
B. Temperature Departure from 30 - Year Mean (°F 1941-70), February 1979



Environmental Data and Information Service, NOAA

Based on preliminary telegraphic reports

Chart II. A. Total Precipitation (Inches), February 1979



B. Percentage of Normal Precipitation, February 1979

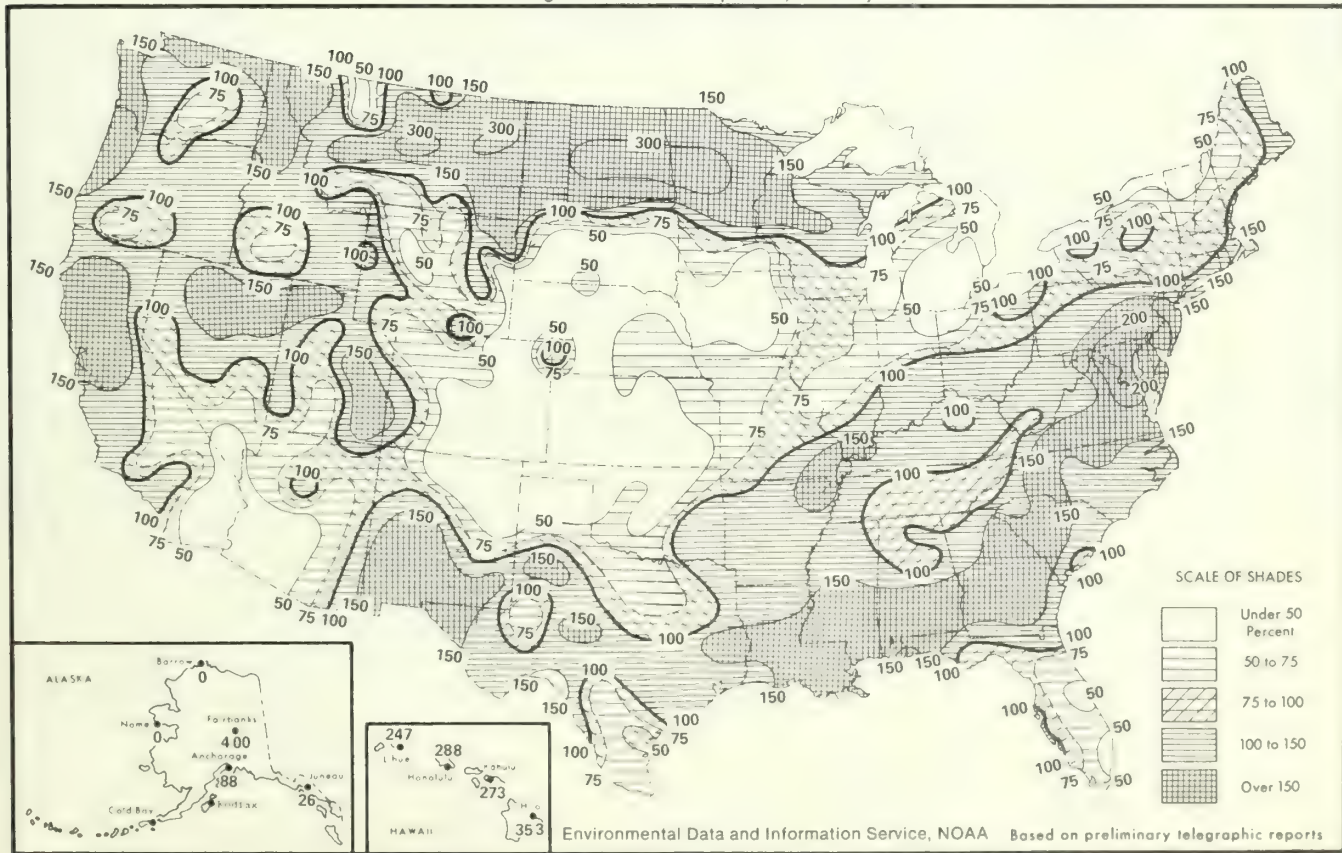
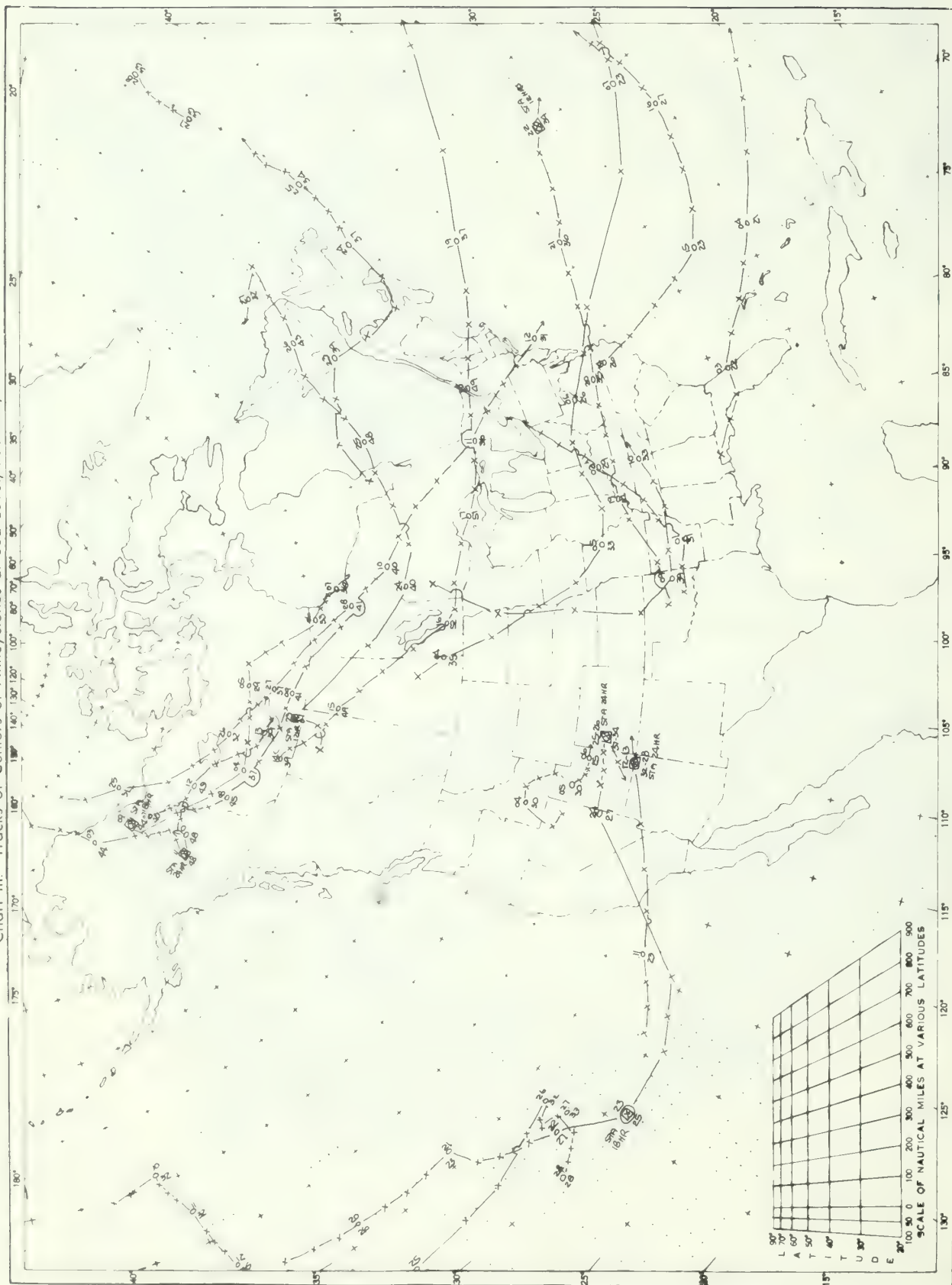




Chart III. Tracks of Centers of Anticyclones at Sea Level, February 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

180° 175° 170° 160° 150° 140° 130° 120° 100° 90° 85° 80° 75° 70°

20° 15° 10° 5° 0° 5° 10° 15°

1000 900 800 700 600 500 400 300 200 100 0

SCALE OF NAUTICAL MILES AT VARIOUS LATITUDES

Land Water Magnetic Declination

rele indicates position of center at 7:00 am EST. Figure above circle indicates date, figure below, pressure to nearest millibar

reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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MARCH 1979

VOLUME 30

NUMBER 3

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRA-  
TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
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*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

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INFORMATION SERVICE

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

MARCH 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Well above normal precipitation prevailed over central and southern California, the southern Plateau, and central and northern Rockies. Some areas in southern California accumulated more than 5 inches. Elsewhere, nearly all of the Great Plains, the western Great Lakes, New England, the central East Coast, and parts of the South recorded more than their normal amounts of precipitation. Local flooding occurred in some areas where melting snow mixed with heavy rain. Average temperatures for the month were generally warmer than normal except in the northern Plains.

Severe weather during the first four days of March dominated the lower Mississippi Valley and the area from southern Alabama into the Appalachians to western North Carolina. Heavy rain, thunderstorms with hail, and tornadoes moved from west to east in the area. Temperatures ranged cooler than normal in the northern Plains, near normal in the West, and warmer in the East.

The heavy rain area moved off the East Coast early in the week of the 5th-11th. More than 2 inches of rain fell along most of the East Coast and into central Florida. An arctic front brought cool air into the Rockies and Plains, and then spread eastward later in the week. Freezing temperatures dipped as far south as the Florida Panhandle. Light rain accompanied the system east of the Mississippi River. Average temperatures for the week were much warmer than normal in the West and Northeast. Northern California averaged 12° above normal, and northern Maine reached 15° over the normal mark. The Mississippi River Valley averaged near or cooler than normal.

Most of the Nation received some measurable precipitation in the week of the 12th-18th. The heaviest amounts fell in the southern and central Plains where

thunderstorms rumbled frequently. The major winter wheat areas of the central Plains, where wheat had begun to break dormancy, welcomed the wetting. Some areas in Texas, Oklahoma, and Kansas totaled more than 2 inches. Elsewhere, moderate rain fell along the West Coast with snow in the higher elevations of the Cascades, the Sierras, and the Plateau. The additional snowpack was helpful, building the water table. It was warmer than normal everywhere but the Appalachians and eastward, where temperatures cooled slightly.

A series of storms moved into the Southwest during the third week. The storm systems brought unwanted rain to southern California and rain or snow to the southern Plateau and central and southern Rockies. The storms moved slowly eastward and into warm, moist air moving northward from the Gulf of Mexico. This situation produced some heavy precipitation from Texas to the western Great Lakes, eastward to the Appalachians and into New England. Thunderstorms were again frequent in the southern States. Warm weather continued over most of the Nation. Only the Southwest was cooler than normal.

The last week of March was similar to the previous week. A series of weather disturbances moved down the West Coast, headed into the Southwest, and edged eastward. Moderate to heavy rain fell along the entire coast and snow, some heavy, in the mountains and Plateau. Heavy rain hit the strawberry area of southern California. Snow covered the ground in the northern Plains, and rain fell in the central Plains. Thunderstorms with heavy rain occurred from central Texas into the Ohio Valley. The Southeast remained dry. Cooler air moved into the northern Plains, the Rockies, and the Plateau.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

MARCH 1979

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	2 Stations	87	22+	Guntersville	20	26	Dayton 1 N	10.98	Newton	3.10
Alaska	2 Stations	57	14+	Umiat	-56	4	Yakutat WSO AP	27.35	Lonely	T
Arizona	Gila Bend	89	12	Hawley Lake	-10	5	Sunrise Mountain	9.82	Yuma WSO AP	.17
Arkansas	2 Stations	83	20+	3 Stations	17	11	Langley	11.60	Fayetteville Exp Station	2.01
California	Death Valley	92	10	White Mountain 2	-6	17	Lytle Creek Ranger Station	14.29	Ocotillo 2	.04
Colorado	2 Stations	81	29+	Rio Grande Reservoir	-31	4	Independence Pass 5 SW	14.67	Gunnison	.20
Connecticut	Bulls Bridge Dam	75	31	2 Stations	9	16	Saugatuck Reservoir	6.78	Groton	3.06
Delaware	Milford 2 WSW	84	31	Wilmington Porter Resvr	15	16	Lewes 1 SW	5.58	Newark University Farm	2.06
Florida	2 Stations	89	30+	2 Stations	25	26+	Pensacola FAA AP	12.96	2 Stations	.15
Georgia	3 Stations	88	31+	2 Stations	21	17+	Unicoi State Park	9.49	Folkston 3 SW	.50
Hawaii	Aloha Stadium-Halawa	90	8	Mauna Kea Obs 111.2	19	25	Hana Airport 355	17.51	3 Stations	.00
Idaho	Grand View 2 W	74	24	Stanley	-21	3	Pierce	4.15	Anderson Dam	.20
Illinois	Harrisburg	78	18	Rochelle	-2	11	Carlyle Reservoir	8.26	Galena 1 N	2.08
Indiana	Spurgeon 2 N	79	23	3 Stations	1	13+	Mount Vernon	8.28	New Castle	.91
Iowa	Glenwood	76	29	Milford 4 NW	-10	10	Sac City	7.78	Independence 2 SW	1.90
Kansas	2 Stations	84	29+	Johnson 11 ESE	5	4	Osborne	7.80	Bird City 11 SSW	1.20
Kentucky	2 Stations	82	23+	3 Stations	11	17+	Bardwell 2 E	7.08	Warsaw Markland Dam	.71
Louisiana	Paradis 7 S	86	19	Plain Dealing	24	6+	Many	8.73	Morgan City	1.46
Maine	Lewiston	73	23	Rangely	-11	13	Eastport	7.72	Jackman	1.54
Maryland	3 Stations	87	31+	Oakland 1 SE	8	15	Snow Hill 4 N	5.86	Centreville	.97
Massachusetts	Dunstable	77	23	Stockbridge	0	16	New Salem	6.14	Hatchville	1.94
Michigan	2 Stations	73	23+	Champion Van Riper Park	-19	12	Marquette FAA AP	6.08	Yale 1 NNE	1.15
Minnesota	2 Stations	52	16	Tower 3 S	-22	15	Isabella 1 W	5.68	Karlstad	.72
Mississippi	2 Stations	85	29+	2 Stations	22	6+	Hickory 1 E	14.73	Monticello	3.00
Missouri	Mansfield	85	19	Berryman 6 NW	5	11	Marble Hill	9.37	Osceola	1.81
Montana	Grass Range	72	15	Elk Park	-26	1	Cooke City	3.29	Biddle 8 SW	.05
Nebraska	Crete	82	28	2 Stations	-1	10	Nebraska City	7.87	Mitchell 5 E	.62
Nevada	Sunrise Manr Las Vegas	84	8	Mountain City R S	-10	3	Lake Valley Steward	3.92	Amarcrossa Farms-Garey	.43
New Hampshire	Epping	75	23	Mount Washington	-19	16	Pinkham Notch	5.59	Lebanon FAA AP	1.84
New Jersey	Atlantic City WSO AP	85	31	2 Stations	10	17+	Greenwood Lake	4.63	Bound Brook 2 W	2.00
New Mexico	2 Stations	83	9	Dulce	-15	4	Bloomfield 3 SE	2.97	12 Stations	.00
New York	4 Stations	76	31+	Old Forge	-14	13	Piseco	7.21	Hector	.53
North Carolina	Dunn 4 NW	85	31	Grandfather Mountain	5	15	Lake Toxaway 2 SW	21.00	Washington Main Street	1.95
North Dakota	Watford City 14 S	56	16	Rugby	-24	10	Tagus	2.07	Fairfield	.14
Ohio	4 Stations	79	31+	Canfield 1 S	3	15	Chardon	4.75	Lithopolis 2 S	.52
Oklahoma	Waurika	88	29	Goodwell Research Station	11	4	Hee Mountain Tower	8.45	Goodwell Research Station	.70
Oregon	2 Stations	82	10+	Seneca	-12	2	Valsetz	11.29	Seneca	.04
Pennsylvania	Carlisle	83	30	Warren	2	15	Germania	4.95	Donegal 2 NW	.77
Puerto Rico	2 Stations	93	26	Adjuntas Substation	44	6	Pico Del Este	13.09	Ponce City	.00
Rhode Island	Providence WSO AP	71	22	North Foster 1 E	7	16	North Foster 1 E	3.19	Block Island WSO AP	1.07
South Carolina	2 Stations	83	31+	Caesars Head	18	26	Hogback Mountain	10.95	Beaufort 7 SW	1.21
South Dakota	3 Stations	74	17+	Camp Crook	-18	3	Vermillion 2 SE	4.05	Usta 8 WNW	.09
Tennessee	Athens	83	31	Tazewell	14	16	Waverly 4 W	8.67	Greeneville Exp Station	2.59
Texas	Falcon Dam	94	19+	Dimmitt 2 N	13	4	Long Lake 5 SW	10.48	7 Stations	.00
Utah	Saint George	77	8	Scotfield	-17	3	Blowhard Mtn Radar	9.25	Wendover Autob	.08
Vermont	Rutland	73	23	Mount Mansfield	-8	16	Searsburg Station	4.78	Montpelier FAA AP	1.87
Virginia	Fredericksburg Natl Pk	88	31	2 Stations	9	16+	Meadows of Dan 5 SW	7.50	Woodstock 2 NE	2.19
Virgin Islands	Truman Field FAA AP	92	18	Estate Pearl	58	20+	Ham Bluff L H Station	5.53	East End	1.14
Washington	Cushman Power House 2	77	23+	Holden Village	1	1	Grays River Hatchery	11.64	Cmak 2 NW	.03
West Virginia	5 Stations	83	31+	4 Stations	3	16	Snowshoe	6.01	Moorefield 2 SSE	.80
Wisconsin	2 Stations	66	23+	2 Stations	-18	27+	Oshkosh	5.94	Viroqua	1.20
Wyoming	South Pass City	72	11	Darwin Ranch	-27	4	Albin	4.05	9 Stations	T

## METRIC UNITS

State and Station



## MARCH 1979

State and Station	Pressure			Temperature							Precipitation						Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower	Average dew point	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total	Snow, Ice pellets				Resultant speed	Resultant direction	Speed	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of days	No. of 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## MARCH 1979

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## CLIMATOLOGICAL DATA

METRIC UNITS

MARCH 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation				Wind				No. of days (sunrise to sunset)		Sky (sunrise to sunset)	%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Snow, ice pellets	Resultant direction					Resultant speed	Fastest mile (1.6 kilometers)		Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
												Max. 32.2 °C or above	Min. 0 °C or lower									mm	mm				mm	mm			mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm

## CLIMATOLOGICAL DATA

METRIC UNITS

MARCH 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind			No. of days (sunrise to sunset)			Possible sunshine (Sky sunrise to sunset)	%													
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	No. of days	Snow, ice pellets			Maximum depth on ground	Residual speed	Residual direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10				
										Max. 32.2 °C or above	Min. 0 °C or lower																							
NEW YORK	BINGHAMTON	488	958.3	1019.2	8.1	-1.6	3.3	3.7	20.6	31	-13.3	15	0	18	-2.8	67	69	-4	36	15	0	53	51	1.7	25	13.0	SE	24	5	5	21	7.8	45	
	BUFFALO	215	991.5	1017.8	8.7	-1.8	3.4	3.2	23.5	23	-12.0	16	0	22	-0.7	75	63	-9	21	14	1	117	127	3.1	29	15.2	SE	24	3	8	20	7.8	45	
	NEW YORK C	40	1014.9	1019.0	13.1	3.5	9.3	3.4	24.4	30	-6.0	16	0	9	0.0	62	112	17	68	10	1	1	0	0.9	23	15.2	SE	24	10	8	13	5.8		
	NEW YORK KENNEDY	4	1018.6	1019.3	11.3	3.6	7.4	3.4	22.6	30	-7.0	16	0	7	0.0	63	96	0	59	8	0	5	1	1.0	27	13.9	SE	24	8	15	6.0			
	NEW YORK LA GUARDIA	3	1018.6	1019.8	11.3	2.3	6.6	2.0	23.3	30	-7.2	16	0	9	-0.9	65	96	-6	63	10	1	0	0	1.0	29	15.2	SE	24	8	15	6.0	48		
	ROCHESTER	167	997.6	1018.2	9.2	-1.4	3.7	3.1	23.3	23	-12.2	15	0	10	-2.6	71	43	-21	12	17	0	208	254	2.5	23	17.9	SW	14	5	4	22	7.9	38	
	SYRACUSE	125	1003.4	1018.5	9.2	-1.9	3.7	3.3	23.3	23	-12.2	15	0	10	-2.6	69	69	-21	12	17	0	378	259	1.5	25	16.1	SW	14	5	4	22	7.9	38	
	NORTH CAROLINA																																	
	ASHEVILLE	652	941.8	1020.7	16.9	3.1	10.0	2.3	24.4	20	-5.6	14	0	11	3.9	75	148	27	65	8	1	1	0	0.6	33	13.0	32	15	10	9	12	5.8	59	
	CAPE HATTERAS R	2	1020.3	1020.7	18.1	5.4	12.1	1.7	22.8	30	-2.8	17	0	4	6.1	75	75	-22	34	8	1	0	0	0.7	31	11.9	27	24	10	6	13	4.4	66	
CHARLOTTE	224	991.5	1019.3	18.9	3.8	10.5	1.7	26.7	31	-5.1	14	0	8	3.3	66	78	-19	52	9	2	0	0	1.0	20	16.2	NW	13	13	4	13	4.4	73		
GREENSBORO	278	987.5	1019.4	17.2	3.8	10.5	1.7	26.7	31	-5.1	14	0	8	3.3	66	78	-20	52	9	2	0	0	1.2	17	16.2	NW	13	13	4	13	4.4	73		
RALEIGH	132	1003.7	1019.8	18.3	4.1	11.2	1.7	27.2	31	-5.1	14	0	7	5.0	71	68	-19	53	9	3	0	0	1.0	19	19.8	27	14	18	10	13	5.6	64		
WILMINGTON	9	1019.3	1020.6	18.6	5.7	12.2	-0.2	28.3	31	-2.2	16	0	3	6.7	74	122	12	41	7	5	0	0	1.2	17	20.1	SE	24	12	6	13	5.6	69		
NORTH DAKOTA	BISMARCK	502	956.3	1018.5	-0.2	-10.7	-5.4	-1.6	6.1	16+	-23.9	4	0	30	-9.4	73	29	11	16	8	0	295	686	2.4	33	19.2	NW	13	7	9	15	6.5	54	
	FARGO	273	982.7	1017.1	-1.6	-11.4	-6.4	-2.1	3.9	17+	-24.4	10	0	29	-9.4	77	51	30	26	11	0	109	483	1.6	33	21.9	NW	13	6	4	21	7.8	50	
	MILLISTON	579	947.2	1018.2	0.9	-10.9	-5.0	-0.9	8.9	16	-26.1	3	0	31	-8.3	78	26	10	12	8	0	262	432	1.8	31	19.7	NW	12	6	10	15	6.9	57	
	OHIO																																	
	AKRON	368	972.6	1018.0	11.2	-0.3	5.5	3.2	23.3	22	-12.2	15	0	17	-3.3	56	44	-36	20	16	1	79	51	1.7	22	13.0	23	14	4	7	20	7.7	39	
	CINCINNATI	232	988.2	1017.9	11.9	0.1	6.1	3.8	23.9	23	-10.0	15	0	16	0.0	70	59	-18	21	18	0	61	127	2.4	22	14.3	18	4	5	22	7.9	36		
	CLEVELAND	237	987.5	1018.1	12.6	1.1	6.8	2.8	23.9	22	-10.0	15	0	14	0.0	59	20	-62	20	16	0	20	25	1.5	22	15.5	18	4	3	6	22	8.0	36	
	COLUMBUS	247	987.5	1018.1	12.6	1.1	6.8	2.8	23.9	22	-10.0	15	0	14	0.0	59	20	-62	20	16	0	20	25	1.5	22	15.5	18	4	3	6	22	8.0	36	
	DAYTON	303	980.7	1017.3	12.4	1.2	6.8	2.9	23.3	29	-9.4	15+	0	14	1.7	73	34	-27	11	17	0	5	1	2.1	22	15.6	SW	13	2	5	20	8.4	44	
	HANSELO	395	974.5	1017.2	10.2	-0.4	4.9	1.5	22.8	22	-11.1	15+	0	16	-1.7	72	65	-26	13	19	2	33	51	2.7	21	12.5	26	14	3	8	20	7.5	41	
TOLEDO	204	991.5	1017.2	9.3	-1.9	3.7	1.6	20.6	23	-11.7	15	0	19	-1.7	72	65	-33	17	13	1	30	25	1.7	22	15.2	W	14	5	5	23	7.6	41		
YOUNGSTOWN	359	947.6	1018.3	10.2	-1.8	4.2	2.4	22.2	22	-13.3	15	0	19	-2.2	65	49	-33	17	13	1	71	25	1.6	22	13.0	25	13	4	6	21	7.0			
OKLAHOMA	OKLAHOMA CITY	392	969.2	1015.8	16.9	4.4	10.7	1.7	29.4	29	-3.3	1	0	7	3.3	65	69	17	35	6	5	0	0	0.2	10	17.0	NW	23	9	10	12	5.3	69	
	TULSA	198	991.5	1015.9	17.6	5.0	11.3	2.3	25.0	30+	-4.4	5	0	7	3.3	63	101	37	31	11	5	0	0	0.8	21	13.0	20	23	8	9	14	6.2	66	
OREGON	ASTORIA	2	1017.3	1018.0	13.2	3.8	8.5	1.6	22.8	13	-1.1	1	0	4	5.6	84	115	-53	40	16	0	1	0	1.0	19	14.3	18	4	4	6	21	7.3		
	BURNS	1265	991.5	1017.8	10.5	-2.6	4.0	1.7	17.8	24	-12.8	2	0	28	4.4	74	79	-33	21	13	2	64	127	0	15	15.6	18	4	4	6	21	7.3		
	EUGENE	109	1004.1	1017.8	14.9	3.7	9.3	1.6	20.6	9+	-0.6	21+	0	4	4.4	74	79	-33	21	13	2	0	0	0.7	23	8.9	1	8	5	5	21	7.7		
	McDONALD	396	965.8	1017.3	16.3	2.7	9.6	2.4	24.4	9	-1.7	1	0	6	3.3	70	21	-21	14	10	0	0	0	0.6	31	9.8	13	27	3	10	15	6.8		
	PENDELTON	452	963.8	1018.0	13.1	2.4	7.8	1.2	20.0	24+	-0.6	2	0	6	0.6	66	30	5	9	6	0	0	0	1.2	25	13.0	20	30	10	6	10	15	6.8	
	PORLAND	6	1016.6	1017.9	15.8	5.0	10.4	2.8	22.8	23+	0.6	8	0	6	4.4	73	64	-29	18	13	0	0	0	0.7	14	15.2	E	9	5	7	19	7.3	56	
	SALEM	60	1010.2	1017.7	15.7	3.2	9.4	2.1	23.3	13	-1.1	25+	0	6	4.4	75	55	-55	16	13	0	0	0	0.8	21	9.4	20	4	5	6	20	7.2		
	SEXTON SIMPLY R	1169	983.2	1016.3	10.8	2.5	6.7	3.4	23.0	13+	-3.9	1	0	6	4.4	75	47	-44	15	14	0	43	239	0	17	17.0	25	13	5	6	20	7.2		
	PACIFIC AREA																																	
	GUAM TAGUIGAN	110	1014.2	1014.7	28.9	21.8	25.4	0.0	30.0	31+	17.8	24	0	0	20.6	77	107	32	32	17	0	0	0	7.2	5	11.6	31	1	10	20	8.0	53		
JUPITER	7	1006.1	1014.7	27.3	22.8	25.4	0.0	30.0	31+	17.8	24	0	0	20.6	77	107	32	32	17	0	0	0	7.2	5	11.6	31	1	10	20	8.0	53			
KUROI R	29	1006.1	1014.7	27.3	22.8	25.4	0.0	30.0	31+	17.8	24	0	0	20.6	77	107	32	32	17	0	0	0	7.2	5	11.6	31	1	10	20	8.0	53			
KWADALIN	2	1006.1	1014.7	27.3	22.8	25.4	0.0	30.0	31+	17.8	24	0	0	20.6	77	107	32	32	17	0	0	0	7.2	5	11.6	31	1	10	20	8.0	53			
MAJURO	3	1006.1	1014.7	27.3	22.8	25.4	0.0	30.0	31+	17.8	24	0	0	20.6	77	107	32	32	17	0	0	0	7.2	5	11.6	31	1	10	20	8.0	53			
MAJURO	3	1006.1	1014.7	27.3	22.8	25.4	0.0	30.0	31+	17.8	24	0	0	20.6	77	107	32	32	17	0	0	0	7.2	5	11.6	31	1	10						



## CLIMATOLOGICAL DATA

METRIC UNITS

MAR 1979

State and Station	Pressure			Temperature						Precipitation					Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours	With thunderstorms	Snow, ice pellets				Maximum depth on ground	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
											mb	mb							°C	°C					°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C

## METRIC UNITS

MARCH 1979

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## HEATING DEGREE DAYS

(Base 65°F.)

MARCH 1979

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				IDAHO				NEBRASKA				TENNESSEE			
BIRMINGHAM U	300			BOISE	668	5624	5004	GRAND ISLAND	866	6865	5740	BRISTOL	511	3961	3938
BIRMINGHAM	303	2684	2708	LEWISTON	582	5431	4707	LINCOLN	816	6679	5611	CHATTANOOGA	390	3205	3289
HUNTSVILLE	385	3066	3125	POCATELLO	887	6759	5998	NORFOLK	988	7199	6241	KNOXVILLE	376	3348	3258
MOBILE	152	1594	1644					NORTH PLATTE	862	7183	5918	MEMPHIS	345	3117	3074
MONTGOMERY	194	1952	2185	ILLINOIS				OMAHA (EPPELY)	775	6182	5490	NASHVILLE	449	3688	3475
				CAIRO U	515	4108	3619	OMAHA (NORTH)	921	6758	5926	OAK RIDGE	462	3785	3647
ALASKA				CHICAGO O HARE	879	6267	5726	SCOTTSBLUFF	737	6344	5839				
ANCHORAGE	1029	7900	9125	CHICAGO MIDWAY	910	6218	5440	VALENTINE	986	7655	6378	TEXAS			
ANNETTE	728	5701	5585	MOLINE	884	6700	5755					ABILENE	272	2781	2495
BARROW	2534	15624	15905	PEORIA	833	6279	5485	NEVADA				AMARILLO	561	4290	3817
BARTER ISLAND	2646	15268	15759	ROCKFORD	1026	6930	6073	ELKO	775	5911	6242	AUSTIN	144	2024	1693
BETHEL	1447	9700	10814	SPRINGFIELD	758	5732	5051	ELY	933	6864	6392	BROWNSVILLE	41	736	650
BETTES	1878	12911	12598					LAS VEGAS	270	2468	2465	CORPUS CHRISTI	38	1033	930
BIG DELTA	1520	11458	11793	INDIANA				RENO	709	5329	5003	DALLAS FT WORTH	261	2659	2294
COLD BAY	910	6610	7520	EVANSVILLE	559	4715	4266	WINNEMUCCA	710	5606	5524	DEL RIO	125	1709	1507
FAIRBANKS	1638	12101	13585	FORT WAYNE	731	5826	5499					EL PASO	362	2610	2589
GULKANA	1362	11312	12944	INDIANAPOLIS	665	5334	5020	NEW HAMPSHIRE				GALVESTON	120	1361	1204
HOMER	987	7449	8271	SOUTH BEND	795	5820	5675	CONCORD	841	6620	6363	HOUSTON INTERCON	135	1683	1411
JUNEAU	904	7549	7306					MT WASHINGTON OBS	1440	11147	11051	LUBBOCK	369	3466	3326
KING SALMON	1069	7929	9454	IOWA								MIDLAND	297	2973	2523
KODIAK	837	6067	6882	BURLINGTON	854	6313	5545	NEW JERSEY				PORT ARTHUR	125	1451	1485
KOTZEBUE	1772	11319	11774	DES MOINES	912	6626	6033	ATLANTIC CITY	623	4693	4407	SAN ANGELO	251	2660	2166
MC GRATH	1574	11511	12399	DOUBUQUE	1053	7334	6456	ATLANTIC CITY U	666	4343	4063	SAN ANTONIO	109	1699	1539
NOME	1526	9910	11421	SIOUT CITY	1038	7492	6257	NEWARK	577	4355	4252	VICTORIA	79	1495	1212
ST. PAUL ISLAND	1065	7170	8368	WATERLOO	1024	7349	6619	TRENTON U	568	4467	4428	WACO	217	2519	2002
TALKEETNA	1148	9156	9801					NEW MEXICO				WICHITA FALLS	343	3348	2779
UNALAKLET				KANSAS				ALBUQUERQUE	509	3815	3952	UTAH			
VALDEZ	1020	7910	8592	CONCORDIA	720	5809	5070	CLAYTON	660	4897	4566	MILFORD	800	6013	5522
YAKUTAT	935	7471	7534	DOODGE CITY	615	5169	4566	ROSWELL	444	3517	3492	SALT LAKE CITY	666	5227	5184
				GOODLAND	710	5677	5359					VERMONT			
ARIZONA				TOPEKA	693	5699	4783	NEW YORK				BURLINGTON	866	7005	6822
FLAGSTAFF	1005	6360	5954	WICHITA	560	5036	4315	ALBANY	803	6265	6053				
PHOENIX	143	1406	1492					BINGHAMTON	832	6329	6281	VIRGINIA			
TUCSON	260	1780	1671	KENTUCKY				BUFFALO	823	6036	5945	LYNCHBURG	489	4070	3888
WINSLOW	646	4471	4247	COVINGTON	563	4972	4582	NEW YORK U	554	4326	4324	NORFOLK	499	3212	3209
YUMA	84	1167	981	LEXINGTON	522	4554	4313	NEW YORK KENNEDY	603	4269	4534	RICHMOND	439	3616	3649
				LOUISVILLE	514	4294	4249	NEW YORK LA GUARDIA	637	4534	4365	ROANOK	512	4150	3923
ARKANSAS								ROCHESTER	813	5945	5821	WALLOPS ISLAND	621	3858	3793
FORT SMITH	393	3740	3187	LOUISIANA				SYRACUSE	796	6030	5805				
LITTLE ROCK	314	3235	3194	BATON ROUGE	178	1846	1637					WASHINGTON			
ND. LITTLE ROCK	368	3469	2952	LAKE CHARLES	151	1694	1472	ASHEVILLE	457	3644	3844	OLYMPIA	536	4837	4488
				NEW ORLEANS	128	1440	1436	CAPE HATTERAS R	439	2342	2496	QUILLAYUTE	600	4834	4647
CALIFORNIA				SHREVEPORT	216	2348	2097	CHARLOTTE	350	3010	3039	SEATTLE	479	4072	3887
BAKERSFIELD	211	1796	2023	MAINE				GREENSBORO	440	3592	3563	SEATTLE-TACOMA	479	4088	4216
BISHOP	514	3994	3793	CARIBOU	1018	7986	8139	RALEIGH	398	3093	3286	SPOKANE	756	6906	5797
BLUE CANYON	720	4687	4449	PORTLAND	905	6424	6342	WILMINGTON	346	2339	2329	STAMPEDE PASS R	928	7761	7362
EUREKA U	459	3695	3538									WALLA WALLA U	517	4943	4241
FRESNO	234	2255	2408	MARYLAND								YAKIMA	641	5934	5211
LONG BEACH	177	1370	1364	BALTIMORE	520	4163	4279	NORTH DAKOTA							
LOS ANGELES	237	1359	1439					RISMARCK	1320	9038	7923	WEST VIRGINIA			
LOS ANGELES U	276	1431	1036	MASSACHUSETTS				FARGO	1377	9241	8159	BECKLEY	597	4751	4944
MT SHASTA R	694	5303	4780	BLUE HILL OBS R	790	5654	5449	WILLISTON	1294	9073	8003	CHARLESTON	456	4245	4180
OAKLAND	294	2301	2332	BOSTON	691	4966	4884					ELKINS	680	5286	5217
RED BLUFF	248	2193	2398	WORCESTER	824	6097	5901	OHIO				HUNTINGTON	484	4360	4205
SACRAMENTO	313	2591	2476					AKRON	712	5647	5465	PARKERSBURG U	579	4739	4369
SAN DIEGO	193	1015	1232	MICHIGAN				CINCINNATI ABGE DB	594	4803	4412				
SAN FRANCISCO	319	2564	2421	ALPENA	1038	7226	7166	CLEVELAND	680	5288	5369	WISCONSIN			
SAN FRANCISCO U	281	2297	2338	DETROIT	841	5771	5457	COLUMBUS	637	5255	5095	GREEN BAY	1117	7660	7033
SANTA MARIA	372	2592	2338	DETROIT METRO	843	6012	5620	DAYTON	634	5281	5049	LAKESIDE	992	7056	6632
STOCKTON	262	2398	2510	FLINT	829	6278	6097	HANSFIELD	744	5790	5143	MADISON	1013	7304	6770
				GRAND RAPIDS	1053	7427	5932	TOLEDO	808	6029	5622	MILWAUKEE	980	6669	6397
COLORADO				HOUGHTON LAKE	834	6376	6021	YOUNGSTOWN	781	5731	5607				
ALAMOSA	1069	8211	7284	LANSING	1054	7421	7145	OKLAHOMA				WYOMING			
COLORADO SPRINGS	875	5958	5505	MUSKOGEE	969	6551	5919	OKLAHOMA CITY	434	3981	3479	CASPER	910	7351	6351
DENVER	751	5593	5158	SAULT STE MARIE	1171	8154	7693	TULSA	391	4017	3476	CHEYENNE	893	6416	6036
GRAND JUNCTION	732	6040	5048	MINNESOTA								LANDER	962	8060	6674
PUEBLO	674	5486	4813	DULUTH	1293	8876	8286	OREGON				SHERIDAN	979	8001	6523
CONNECTICUT				INTERNATIONAL FALLS	1402	10021	9113	ASTORIA	543	4391	4130				
BRIDGEPORT	675	4662	4714	MINNEAPOLIS	1112	7634	7226	BURNS U	792	6455	5981				
HARTFORD	730	5838	5581	ROCHESTER	1183	8348	7242	EUGENE	496	4452	3876				
				ST CLOUD	1260	8692	7796	MEDFORD	483	4211	4142				
DELAWARE								PENDLETON	582	5499	4527				
WILMINGTON	605	4638	4431	MISSISSIPPI				PORTLAND	434	4235	3968				
				JACKSON	262	2395	2220	SALEM	486	4328	3968				
DIST.OF COLUMBIA	578	4551	4517	MERIDIAN	261	2462	2302	SEXTON SUMMIT R	643	5180	4991				
WASHINGTON DULLES	425	3612	3874									PENNSYLVANIA			
WASHINGTON NATIONAL				MISSOURI				ALLENTOWN	633	5072	5163	ERIE	874	6096	5829
FLORIDA				COLUMBIA REGIONAL	633	5119	4636	HARRISBURG	611	4700	4726	PHILADELPHIA	556	4385	4376
APPALACHICOLA U	204	1474	1331	KANSAS CITY	698	5520	4879	PITTSBURGH	671	5549	5252	PITTSBURGH U	626	5025	4725

# COOLING DEGREE DAYS

(Base 65°F.)

MARCH 1979

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM U	11	11	61	HILLO	210	525	553	GRAND ISLAND	0	0	0	CHARLESTON	9	11	61
BIRMINGHAM	8	9	45	HONOLULU	250	618	678	LINCOLN	0	0	0	CHARLESTON U	3	3	68
HUNTSVILLE	9	9	27	KAHULUI	206	600	618	NORFOLK	0	0	0	COLUMBIA	13	13	30
MOBILE	28	34	99	LIHUE	220	707	583	NORTH PLATTE	0	0	0	GRNVLE-SPRTNBG	8	8	13
MONTGOMERY	13	15	61					OHAWA (EPPLEY)	0	0	0				
ALASKA				INDIAN				OHAWA (NORTH)	0	0	0				
ANCHORAGE	0	0	0	ADISE	0	0	0	SCOTTSBLUFF	0	0	0	SOUTH DAKOTA			
ANNETTE	0	0	0	LEWISTON	0	0	0	VALENTINE	0	0	0	ABERDEEN	0	0	0
BARTON	0	0	0	POCATELLO	0	0	0					HURON	0	0	0
BARTER ISLAND	0	0	0					NEVADA				RAPID CITY	0	0	0
RETHEL	0	0	0	ILLINOIS				ELKO	0	0	0	SIOUX FALLS	0	0	0
BETTES	0	0	0	CAIRO U	0	0	16	FLY	0	0	0				
BIG BELTA	0	0	0	CHICAGO N HARE	0	0	0	LAS VEGAS	0	0	0	TENNESSEE			
COLD BAY	0	0	0	CHICAGO MIDWAY	0	0	0	RENU	0	0	14	BRISTOL	0	0	9
FAIRBANKS	0	0	0	HOLINE	0	0	0	WINNEBUCCA	0	0	0	CHATTANOOGA	0	0	18
GULKANA	0	0	0	PEORIA	0	0	0					KNOXVILLE	15	15	24
HUMER	0	0	0	ROCKFORD	0	0	0					MEMPHIS	19	19	23
JUNEAU	0	0	0	SPRINGFIELD	0	0	0	NEW HAMPSHIRE	0	0	0	NASHVILLE	11	11	19
KING SALMON	0	0	0					CONCORD	0	0	0	DAN RIDGE	2	2	12
KODIAK	0	0	0	INDIANA				MT WASHINGTON OBS	0	0	0				
KUTZEBUE	0	0	0	EVANSVILLE	0	0	11					TEXAS			
MC GRATH	0	0	0	FORT WAYNE	0	0	0	NEW JERSEY				ABILENE	20	29	29
NUME	0	0	0	INDIANAPOLIS	0	0	0	ATLANTIC CITY	5	5	0	AMARILLO	0	0	0
ST. PAUL ISLAND	0	0	0	SOUTH BEND	0	0	0	ATLANTIC CITY U	0	0	0	AUSTIN	29	38	76
TALKEETNA	0	0	0					NEWARK	0	0	0	BROWNSVILLE	173	274	358
UNALASKA	0	0	0	IDAHO				TRENTON U	0	0	0	CORPUS CHRISTI	140	205	199
VALDEZ	0	0	0	BURLINGTON	0	0	0					DEL RIO	9	10	25
YAKUTAT	0	0	0	DES MOINES	0	0	0	NEW MEXICO				EL PASO	66	75	118
ARIZONA				DUQUOE	0	0	0	ALBUQUERQUE	0	0	0	CLAYTON	22	22	110
FLAGSTAFF	0	0	0	SIOUX CITY	0	0	0	ROSWELL	0	0	0	HOUSTON INTERCON	62	62	97
PHOENIX	11	11	35	WATERLOO	0	0	0					LUBBOCK	0	0	9
TUCSON	0	0	0					NEW YORK				MIDLAND	5	5	17
WINSTON	0	0	0	KANSAS				ALBANY	0	0	0	PORT ARTHUR	54	75	93
YUMA	60	60	109	CONCORDIA	1	1	0	RINGHAMTON	0	0	0	SAN ANGELO	17	19	42
ARKANSAS				PORTAGE CITY	2	2	0	RUFFALO	0	0	0	SAN ANTONIO	65	81	88
FORT SMITH	7	7	15	CONCORDIA	0	0	0	NEW YORK U	0	0	0	VICTORIA	78	103	120
LITTLE ROCK	24	24	14	TOPEKA	4	4	0	NEW YORK KENNEDY	0	0	0	WACO	21	22	44
MO. LITTLE ROCK	7	7	18	WICHITA	5	5	0	NEW YORK LA GUARDIA	0	0	0	WICHITA FALLS	18	20	22
CALIFORNIA								ROCHESTER	0	0	0				
BAKERSFIELD	12	12	6	KENTUCKY				SYRACUSE	0	0	0	UTAH			
BISHOP	0	0	0	COVINGTON	2	2	0					HILFORD	0	0	0
BLUE CANYON	0	0	0	LEXINGTON	2	2	10	NORTH CAROLINA				SALT LAKE CITY	0	0	0
FOURKA U	0	0	0	LOUISVILLE	5	5	10	ASHEVILLE	0	0	0				
FRESNO	2	2	7					CAPE HATTERAS R	2	2	12	VERMONT			
LONG BEACH	10	10	12	LOUISIANA				CHARLOTTE	4	4	15	BURLINGTON	0	0	0
LOS ANGELES	9	9	12	RAON POJGE	44	51	85	GREENSBORO	6	6	11				
LOS ANGELES U	14	14	34	LAKE CHARLES	36	40	104	RALEIGH	6	6	12	VIRGINIA			
MT SHASTA R	0	0	0	NEW ORLEANS	63	77	118	WILMINGTON	9	11	31	LYNCHBURG	11	11	0
OAKLAND	0	0	0	SHREVEPORT	39	47	47					NORFOLK	11	11	0
RED BLUFF	6	6	0					NORTH DAKOTA				PICHMOND	16	16	8
SACRAMENTO	0	0	0	MAINE				BISMARCK	0	0	0	ROANOKE	10	10	0
SANDBERG R	0	0	0	CARIBU	0	0	0	FARGO	0	0	0	WALLOPS ISLAND	1	1	0
SAN DIEGO	10	10	19	PORTLAND	0	0	0	HILLISTON	0	0	0				
SAN FRANCISCO	0	0	0					OHIO				WASHINGTON			
SAN FRANCISCO U	0	0	0	MARYLAND				AKRON	0	0	0	OLYMPIA	0	0	0
SANTA MARIA	0	0	0	BALTIMORE	15	15	0	CINCINNATI ABBE JB	2	2	7	QUILLAYTE	0	0	0
STOCKTON	0	0	0					CLEVELAND	0	0	0	SEATTLE	0	0	0
COLORADO				MASSACHUSETTS				COLUMBUS	0	0	0	SEATTLE-TACOMA	0	0	0
ALAMOSA	0	0	0	BLUE HILL OBS R	0	0	0	DAYTON	1	1	0	SPOKANE	0	0	0
COLORADO SPRINGS	0	0	0	ROSTON	0	0	0	MANSFIELD	0	0	0	STAMPEDE PASS R	0	0	0
DENVER	0	0	0	WORCESTER	0	0	0	TOLEDO	0	0	0	WALLA WALLA U	0	0	10
GRAND JUNCTION	0	0	0					YOUNGSTOWN	0	0	0	YAKIMA	0	0	0
PUEBLO	0	0	0	MICHIGAN								WEST INDIES			
CONNECTICUT				ALPENA	0	0	0	OKLAHOMA				SAN JUAN P.R.	404	1223	960
BRIDGEPORT	0	0	0	DETROIT	0	0	0	OKLAHOMA CITY	10	10	11				
HARTFORD	0	0	0	DETROIT METRO	0	0	0	TULSA	9	9	10	WEST VIRGINIA			
				FLINT	0	0	0					BECKLEY	0	0	0
DELAWARE				GRAND RAPIDS	0	0	0	UTAH				CHARLESTON	13	13	7
WILMINGTON	4	4	0	HIGHTON LAKE	0	0	0	ASTORIA	0	0	0	ELKINS	0	0	0
				LANSING	0	0	0	BURNS U	0	0	0	HUNTINGTON	13	13	0
DIST. OF COLUMBIA				MUSKEGON	0	0	0	EUGENE	0	0	0	PARKERSBURG U	9	9	0
WASHINGTON DULLER	9	9	0	SAULT STE MARIE	0	0	0	MEDFORD	0	0	0				
WASHINGTON NATIONAL	14	14	0					PENOLETON	0	0	0	WISCONSIN			
				MINNESOTA				PORTLAND	0	0	0	GREEN BAY	0	0	0
FLORIDA				INTERNATIONAL FALLS	0	0	0	SALEM	0	0	0	LA CROSSE	0	0	0
APPALACHICOLA U	4	5	92	MINNEAPOLIS	0	0	0	SEXTON SUMMIT R	0	0	0	MADISON	0	0	0
DAYTONA BEACH	48	122	182	ROCHESTER	0	0	0					MILWAUKEE	0	0	0
FORT MYERS	124	256	553	ST CLOUD	0	0	0	PACIFIC AREA							
JACKSONVILLE	26	50	121	MISSISSIPPI				GUAM TAGUAC R	403	1138	1119	WYOMING			
KEY WEST	250	551	706	JACKSON	35	37	68	JOHNSTON	384	1026	1048	CASPER	0	0	0
MIAMI	149	320	478	MERIDIAN	13	13	68	KOROR R	511	1430	1441	CHEYENNE	0	0	0
ORLANDO	45	122	260					KWJALFIN	561	1530	1479	LANDER	0	0	0
PENSACOLA	16	16	117	MISSOURI				MAJURO	519	1480	1445	SHERIDAN	0	0	0
TALLAHASSEE	10	12	103	COLUMBIA REGIONAL	0	0	0	PAGO PAGO	540	1507	1385				
TAMPA	73	137	268	KANSAS CITY	1	1	0	PONAPE R	525	1514	1416				
WEST PALM BEACH	123	269	594	ST JOSEPH	0	0	0	TRUK HREN ISLAND	531	1553	1452				
				ST LOUIS	2	2	0	WAKE	443	1149	1102				
GEORGIA				SPRINGFIELD	0	0	0	YAP R	499	1423	1407				
ATHENS	15	15	14					PENNSYLVANIA							
ATLANTA	13	13	12	MONTANA				ALLENTOWN	0	0	0				
AUGUSTA	9	9	37	BILLINGS	0	0	0	FRIE	0	0	0				
COLUMBUS	21	23	47	GLASGOW	0	0	0	HARRISBURG	0	0	0				
MACON	18	19	59	GREAT FALLS	0	0	0	PHILADELPHIA	6	6	0				
ROME	4	4	13	HAYRE	0	0	0	PITTSBURGH	0	0	0				
SAVANNAH	28	33	77	HELENA	0	0	0	SCRANTON	0	0	0				
				KALISPELL	0	0	0	WILLIAMSPORT	0	0	0				
				MILES CITY	0	0	0								
				MISSOULA	0	0	0	RHODE ISLAND							
								BLUMF ELAND	0	0	0				
								PROVIDENCE	0	0	0				



## STORM SUMMARY

MARCH 1979

[illegible]

## Average monthly values

MARCH 1972



# RAWINSONDE DATA

Average monthly values

MARCH 1979

CENTREVILLE, AL 1004 MB										CHARLESTON, SC 1019 MB										CHATHAM, MA 1017 MB										CHIHUAHUA, MEXICO 856 MB									
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m p.s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m p.s									
1000	31	129	-2.1	-6.2	28	1.0	31	140	8.6	5.5	22	1.9	31	13	9.9	7.2	29	1.5	31	16	2.3	-9.9	23	1.0	31	1+28	8+2	-1+8	23	2.2									
900	31	121	-5.7	-9.6	28	1.0	31	139	8.3	5.4	21	1.0	30	175	12.6	6.3	22	1.8	29	162	3.8	-11.0	24	1.8	31	1+28	8+2	-1+8	23	2.2									
800	31	114	-9.3	-13.2	28	1.0	31	138	8.0	5.3	21	1.0	30	174	12.3	6.0	21	1.8	29	160	3.5	-10.7	24	1.8	31	1+28	8+2	-1+8	23	2.2									
700	31	107	-12.9	-16.8	28	1.0	31	137	7.7	5.2	21	1.0	30	173	12.0	5.7	21	1.8	29	158	3.2	-10.4	24	1.8	31	1+28	8+2	-1+8	23	2.2									
600	31	100	-16.5	-20.4	28	1.0	31	136	7.4	5.1	21	1.0	30	172	11.7	5.4	21	1.8	29	156	2.9	-10.1	24	1.8	31	1+28	8+2	-1+8	23	2.2									
500	31	93	-20.1	-24.0	28	1.0	31	135	7.1	5.0	21	1.0	30	171	11.4	5.7	21	1.8	29	154	2.6	-9.8	24	1.8	31	1+28	8+2	-1+8	23	2.2									
400	31	86	-23.7	-27.6	28	1.0	31	134	6.8	4.9	21	1.0	30	170	11.1	6.0	21	1.8	29	152	2.3	-9.5	24	1.8	31	1+28	8+2	-1+8	23	2.2									
300	31	79	-27.3	-31.2	28	1.0	31	133	6.5	4.8	21	1.0	30	169	10.8	6.3	21	1.8	29	150	2.0	-9.2	24	1.8	31	1+28	8+2	-1+8	23	2.2									
200	31	72	-30.9	-34.8	28	1.0	31	132	6.2	4.7	21	1.0	30	168	10.5	6.6	21	1.8	29	148	1.7	-8.9	24	1.8	31	1+28	8+2	-1+8	23	2.2									
100	31	65	-34.5	-38.4	28	1.0	31	131	5.9	4.6	21	1.0	30	167	10.2	6.9	21	1.8	29	146	1.4	-8.6	24	1.8	31	1+28	8+2	-1+8	23	2.2									
000	31	58	-38.1	-42.0	28	1.0	31	130	5.6	4.5	21	1.0	30	166	9.9	7.2	21	1.8	29	144	1.1	-8.3	24	1.8	31	1+28	8+2	-1+8	23	2.2									
900	31	51	-41.7	-45.6	28	1.0	31	129	5.3	4.4	21	1.0	30	165	9.6	7.5	21	1.8	29	142	0.8	-8.0	24	1.8	31	1+28	8+2	-1+8	23	2.2									
800	31	44	-45.3	-49.2	28	1.0	31	128	5.0	4.3	21	1.0	30	164	9.3	7.8	21	1.8	29	140	0.5	-7.7	24	1.8	31	1+28	8+2	-1+8	23	2.2									
700	31	37	-48.9	-52.8	28	1.0	31	127	4.7	4.2	21	1.0	30	163	9.0	8.1	21	1.8	29	138	0.2	-7.4	24	1.8	31	1+28	8+2	-1+8	23	2.2									
600	31	30	-52.5	-56.4	28	1.0	31	126	4.4	4.1	21	1.0	30	162	8.7	8.4	21	1.8	29	136	-0.1	-7.1	24	1.8	31	1+28	8+2	-1+8	23	2.2									
500	31	23	-56.1	-60.0	28	1.0	31	125	4.1	4.0	21	1.0	30	161	8.4	8.7	21	1.8	29	134	-0.4	-6.8	24	1.8	31	1+28	8+2	-1+8	23	2.2									
400	31	16	-59.7	-63.6	28	1.0	31	124	3.8	3.9	21	1.0	30	160	8.1	9.0	21	1.8	29	132	-0.7	-6.5	24	1.8	31	1+28	8+2	-1+8	23	2.2									
300	31	9	-63.3	-67.2	28	1.0	31	123	3.5	3.8	21	1.0	30	159	7.8	9.3	21	1.8	29	130	-1.0	-6.2	24	1.8	31	1+28	8+2	-1+8	23	2.2									
200	31	2	-66.9	-70.8	28	1.0	31	122	3.2	3.7	21	1.0	30	158	7.5	9.6	21	1.8	29	128	-1.3	-5.9	24	1.8	31	1+28	8+2	-1+8	23	2.2									
100	31	-5	-70.5	-74.4	28	1.0	31	121	2.9	3.6	21	1.0	30	157	7.2	9.9	21	1.8	29	126	-1.6	-5.6	24	1.8	31	1+28	8+2	-1+8	23	2.2									
000	31	-12	-74.1	-78.0	28	1.0	31	120	2.6	3.5	21	1.0	30	156	6.9	10.2	21	1.8	29	124	-1.9	-5.3	24	1.8	31	1+28	8+2	-1+8	23	2.2									
900	31	-19	-77.7	-81.6	28	1.0	31	119	2.3	3.4	21	1.0	30	155	6.6	10.5	21	1.8	29	122	-2.2	-5.0	24	1.8	31	1+28	8+2	-1+8	23	2.2									
800	31	-26	-81.3	-85.2	28	1.0	31	118	2.0	3.3	21	1.0	30	154	6.3	10.8	21	1.8	29	120	-2.5	-4.7	24	1.8	31	1+28	8+2	-1+8	23	2.2									
700	31	-33	-84.9	-88.8	28	1.0	31	117	1.7	3.2	21	1.0	30	153	6.0	11.1	21	1.8	29	118	-2.8	-4.4	24	1.8	31	1+28	8+2	-1+8	23	2.2									
600	31	-40	-88.5	-92.4	28	1.0	31	116	1.4	3.1	21	1.0	30	152	5.7	11.4	21	1.8	29	116	-3.1	-4.1	24	1.8	31	1+28	8+2	-1+8	23	2.2									
500	31	-47	-92.1	-96.0	28	1.0	31	115	1.1	3.0	21	1.0	30	151	5.4	11.7	21	1.8	29	114	-3.4	-3.8	24	1.8	31	1+28	8+2	-1+8	23	2.2									
400	31	-54	-95.7	-99.6	28	1.0	31	114	0.8	2.9	21	1.0	30	150	5.1	12.0	21	1.8	29	112	-3.7	-3.5	24	1.8	31	1+28	8+2	-1+8	23	2.2									
300	31	-61	-99.3	-103.2	28	1.0	31	113	0.5	2.8	21	1.0	30	149	4.8	12.3	21	1.8	29	110	-4.0	-3.2	24	1.8	31	1+28	8+2	-1+8	23	2.2									
200	31	-68	-102.9	-106.8	28	1.0	31	112	0.2	2.7	21	1.0	30	148	4.5	12.6	21	1.8	29	108	-4.3	-2.9	24	1.8	31	1+28	8+2	-1+8	23	2.2									
100	31	-75	-106.5	-110.4	28	1.0	31	111	-0.1	2.6	21	1.0	30	147	4.2	12.9	21	1.8	29	106	-4.6	-2.6	24	1.8	31	1+28	8+2	-1+8	23	2.2									
000	31	-82	-110.1	-114.0	28	1.0	31	110	-0.4	2.5	21	1.0	30	146	3.9	13.2	21	1.8	29	104	-4.9	-2.3	24	1.8	31	1+28	8+2	-1+8	23	2.2									
900	31	-89	-113.7	-117.6	28	1.0	31	109	-0.7	2.4	21	1.0	30	145	3.6	13.5	21	1.8	29	102	-5.2	-2.0	24	1.8	31	1+28	8+2	-1+8	23	2.2									
800	31	-96	-117.3	-121.2	28	1.0	31	108	-1.0	2.3	21	1.0	30	144	3.3	13.8	21	1.8	29	100	-5.5	-1.7	24	1.8	31	1+28	8+2	-1+8	23	2.2									
700	31	-103	-120.9	-124.8	28	1.0	31	107	-1.3	2.2	21	1.0	30	143	3.0	14.1	21	1.8	29	98	-5.8	-1.4	24	1.8	31	1+28	8+2	-1+8	23	2.2									
600	31	-110	-124.5	-128.4	28	1.0	31	106	-1.6	2.1	21	1.0	30	142	2.7	14.4	21	1.8	29	96	-6.1	-1.1	24	1.8	31	1+28	8+2	-1+8	23	2.2									
500	31	-117	-128.1	-132.0	28	1.0	31	105	-1.9	2.0	21	1.0	30	141	2.4	14.7	21	1.8	29	94	-6.4	-0.8	24	1.8	31	1+28	8+2	-1+8	23	2.2									
400	31	-124	-131.7	-135.6	28	1.0	31	104	-2.2	1.9	21	1.0	30	140	2.1	15.0	21	1.8	29	92	-6.7	-0.5	24	1.8	31	1+28	8+2	-1+8	23	2.2									
300	31	-131	-135.3	-139.2	28	1.0	31	103	-2.5	1.8	21	1.0	30	139	1.8	15.3	21	1.8	29	90	-7.0	-0.2	24	1.8	31	1+28	8+2	-1+8	23	2.2									
200	31	-138	-138.9	-142.8	28	1.0	31	102	-2.8	1.7	21	1.0	30	138	1.5	15.6	21	1.8	29	88	-7.3	0.1	24	1.8	31	1+28	8+2	-1+8	23	2.2									
100	31	-145	-142.5	-146.4	28	1.0	31	101	-3.1	1.6	21	1.0	30	137	1.2	15.9	21	1.8	29	86	-7.6	0.4	24	1.8	31	1+28	8+2	-1+8	23	2.2									
000	31	-152	-146.1	-150.0	28</																																		

## Average monthly values

 $\gamma_A \cdot C = 1.7$ [illegible]

GREENSBORO, NC 987 Mb										GUADALUPE IS., MEXICO 1015 Mb										GUAM, MARIANA IS. 1000 Mb										HILO, HI 1017 Mb										HUNTINGTON, WV 989 Mb									
SFC	31	275	5.6		-2	21		-8	30	23	15.0	10.6	33	5.6	31	111	24.8	21.8	DR	3.9	31	10	19.2	16.3	24	1.0	31	246	5.6	-1.0	20		-7																
1000									30	145	14.2	9.4	32	6.1	17	118	25.1	21.8	07	4.0	31	153	20.1	16.5	21																								
950	31	590	8.6	-1	24	3.7	30		30	576	11.4	5.0	33	4.5	31	558	22.0	19.5	08	8.9	31	595	17.1	14.7	10	4.3	31	572	6.9	-1.3	22		4																
900	31	1,035	6.7	-2	23	5.5	30		30	1,027	9.8	-1.5	30	5.3	31	1,027	19.4	14.7	06	9.3	31	1,055	13.9	12.2	10	4.8	31	1,015	4.7	-2.5	24		6.8																
850	31	1,503	4.0	-4	27	6.3	30		30	1,500	8.0	-5.3	29	4.9	31	1,519	17.3	16.1	06	7.5	31	1,535	10.7	8.3	10	4.1	31	1,479	2.4	-5.4	25		8.5																
800	31	1,990	2.7	-7	26	7.3	30		30	1,987	6.8	-9.4	28	5.3	31	2,000	16.5	14.7	05	6.7	31	2,039	8.8	6.5	10	3.3	31	1,968	-5	-8.1	25		9																
750	31	2,513	-3	-12	25	8.6	30		30	2,525	4.7	-13.9	28	5.8	31	2,581	13.4	-4	09	5.2	31	2,573	8.3	-12.2	10	1.3	31	2,484	-1.6	-10.4	26		10.5																
700	31	3,062	-3.0	-14	27	9.9	30		30	3,085	1.6	-17.1	27	6.5	31	3,159	10.9	-6.5	08	4.8	31	3,140	6.1	-14.7	36	3.3	31	3,031	-9.1	-13.4	26		11.4																
650	31	3,645	-6.3	-18	27	11.2	30		30	3,678	-2.0	-19.3	27	7.6	31	3,774	7.7	-9	07	4.2	31	3,744	2.9	-16.6	29	1.5	31	3,612	-7.2	-17.7	26		12.7																
600	31	4,267	-9.9	-22	27	12.4	30		30	4,310	-5.5	-23.4	27	11.0	31	4,429	4.0	-12	22	09	3.2	31	4,387	-8	-19	28	3.5	31	4,232	-11.1	-21.5	26		12.7															
550	31	4,933	-14.2	-27	29	14.2	30		30	4,987	-9.8	-27.4	26	13.8	31	5,131	-0	-16	09	5.1	31	5,078	-3	-24	3	5.1	31	4,904	-14	-26.6	26		13.7																
500	31	5,680	-19.5	-32	28	16.1	30		30	5,735	-14.7	-32	26	15.5	31	5,886	-4	-23	48	1.0	31	5,817	-10.6	-28.9	29	4.1	31	5,608	-20.3	-32.5	27		14.0																
450	31	6,423	-24.8	-38	28	17.6	30		30	6,505	-20.0	-36.1	26	19.5	31	6,711	-9.1	-27	10	3.1	31	6,619	-16.4	-31.6	29	9.9	31	6,379	-20.0	-38.2	27		15.7																
400	31	7,269	-31.2	-43	24	18.4	30		30	7,367	-26.6	-41.2	26	21.3	31	7,612	-14.8	-32	08	2.3	30	7,492	-23.0	-36.9	29	12.9	31	7,221	-32.1	-43.1	27		17.3																
350	31	8,205	-38.1	-46	29	20.1	30		30	8,320	-34.0	-47.5	26	24.4	31	8,611	-21.9	-38	01	1.4	30	8,461	-29.5	-46	29	1																							
300	30	9,245	-45.6				28	25.2	30	9,379	-42.1	-49.1	26	27.0	30	9,724	-30.6	-45.4	20	1.2	30	9,540	-37.2	-48.7	28	21.6	31	9,162	-46.3		27	21.3																	
250	29	10,440	-53.0				26	27.6	30	10,591	-50.2		26	32.9	30	10,970	-47.0	-52.1	13	2.0	28	10,780	-50.4		28	18.1	31	10,388	-56.4		27	24.5																	
200	26	11,863	-57.5				29	31.1	30	12,026	-56.0		26	32.7	29	12,471	-53.3			20	6.7	29	12,252	-52.5		28	32.7	31	11,808	-56.8		27	27.3																
175	27	12,707	-57.5				29	31.3	29	12,874	-57.0		26	30.2	29	13,317	-60.4			20	7.8	28	13,103	-58.0		28	32.5	30	12,654	-57.2		27	27.2																
150	27	13,683	-57.1				28	26.1	29	13,845	-59.0		26	26.3	29	14,260	-68.0			19	5.4	28	14,060	-64.4		28	28.6	30	13,632	-56.1		27	22.0																
125	27	14,832	-59.4				28	24.2	29	14,978	-63.0		26	23.4	29	15,334	-75.9			17	3.7	28	15,156	-70.8		28	23.7	30	14,789	-57.5		27	22.2																
100	27	16,222	-61.4				29	20.4	28	16,356	-67.0		26	17.1	29	16,599	-82.8			13	3.6	28	16,461	-76.5		28	16.4	29	16,188	-68.5		27	19.5																
75	27	17,602	-62.3				29	14.4	27	17,660	-66.6		26	13.0	28	17,834	-82.6			8	2.3	28	17,744	-75.9		28	10.8	28	17,588	-67.7		27	14.6																
50	27	18,428	-61.5				29	11.9	27	18,489	-65.9		26	10.1	28	18,594	-78.0			35	1.1	28	18,520	-73.1		28	7.2	28	18,418	-59.9		27	12.3																
25	27	19,385	-60.6				29	8.8	27	19,429	-61.4		26	7.7	27	19,446	-73.4			29	1.8	27	19,435	-68.6		27	3.8	28	19,381	-59.6		28	10.4																
0	26	20,527	-58.9				29	6.1	27	20,551	-61.8		27	5.0	27	20,566	-68.7			25	2.9	26	20,542	-63.8		25	1.7	27	20,527	-57.6		28	8.0																
40	26	21,932	-57.5				29	5.0	26	21,938	-59.4		28	2.3	27	21,922	-68.5			14	1.8	26	21,923	-60.4		40	0.6	25	21,934	-58.7		29	8.6																
10	25	23,707	-55.0				28	2.1	27	23,759	-57.0		27	1.7	27	23,757	-65.5			8	1.4	25	23,757	-55.5		40	0.4	24	23,707	-54.5		29	8.0																
25	25	24,930	-53.2				28	5.8	19	24,922	-53.9		26	5.6	27	24,693	-53.7			08	11.0	26	24,907	-52.9		40	4.9	22	24,931	-53.1		27	6.5																
70	24	26,376	-49.7				27	8.1	15	26,358	-51.5		27	4.7	27	26,342	-49.6			09	16.7	25	26,357	-49.9		08	7.1	19	26,381	-50.2		26	8.3																
15	22	28,281	-45.4				28	12.2	11	28,238	-47.8		26	8.8	27	28,246	-45.4			08	21.2	24	28,253	-46.2		09	10.2	18	28,282	-45.1		26	10.7																
10	10	31,011	-35.9										15	15	31,006	-39.3			08	22.3	18	31,011	-40.7		10	11.8	11	31,039	-38.8																				

* INTERNATIONAL FALLS, MN										* ISLE DEL CISNE										JACKSON, MS										JOHN F. KENNEDY INT. AP NY										JOHNSON IS., PACIFIC AREA									
971 MB										1013 MB										1004 MB										1020 MB										1015 MB									
SFC	31	354	-9.5	-13.4	01	5.5	31	10	25.1	21.0	06	4.3	31	100	9.5	7.0	19	4.9	28	5	3.7	-3.4	31	1.5	31	3	24.3	20.5	08	7.3																			
1000							31	123	24.8	20.6	06	5.3	27	162	10.6	6.7	19	1.2	27	172	2.8	-3.9	26	1.8	31	133	23.3	18.8	08	7.6																			
950	31	530	-8.4	-11.3	35	6.6	31	571	21.0	18.6	06	6.6	31	562	11.0	3.3	22	4.0	28	582	2.0	-4.2	26	3.3	31	579	19.5	16.8	08	8.0																			
900	31	590	-7.8	-11.0	31	1.5	31	1,039	18.1	13.4	09	5.9	31	1,032	9.2	-4.24	5.5	2.8	1,017	-1.1	-5.4	28	5.8	31	1,043	18.1	12.8	08	8.3																				
850	31	1,395	-7.4	-11.7	30	3.1	31	1,527	15.3	9.4	08	3.7	31	1,505	7.5	-4.9	24	7.4	1,478	-1.1	-9.8	26	6.5	31	1,526	13.3	7.9	08	7.7																				
800	31	1,603	-7.3	-14.5	31	1.5	31	1,603	11.1	4.0	07	2.4	31	2,003	6.4	-8.5	5.5	7.9	1,957	-1.9	-14.5	28	7.0	31	2,038	12.8	-2.1	08	6.9																				
750	31	2,367	-6.6	-18.3	30	5.5	31	2,580	10.8	-1.4	06	2.0	31	2,526	3.6	-11.3	26	10.6	2,469	-4.1	-17.5	28	6.6	31	2,578	11.4	-6.6	07	5.7																				
700	31	2,898	-11.4	-21.0	29	7.0	31	3,153	8.6	-7.7	37	1.8	31	3,084	-0.8	-14.2	27	12.3	29	3,010	-7.0	-20.3	26	10.3	31	3,152	9.2	-12.4	08	4.6																			
650	31	3,464	-13.7	-23.2	28	7.9	31	3,763	6.2	-12.1	36	1.3	31	3,673	-3.8	-17.0	27	12.9	28	3,585	-9.9	-22.2	27	11.2	31	3,763	6.2	-15.6	04	3.5																			
600	31	4,069	-16.9	-25.9	29	9.7	31	4,415	7.9	-16.6	31	2.4	31	4,301	-7.6	-21.4	27	13.9	28	4,198	-13.6	-26.4	28	11.8	31	4,415	7.9	-18.9	01	3.0																			
550	31	4,718	-20.8	-30.6	29	11.4	31	5,114	-1.9	-21.7	30	4.3	31	4,972	-12.3	-26.3	27	16.4	28	4,855	-16.6	-32.9	28	13.3	31	5,114	-1.9	-21.7	01	3.0																			
500	31	5,416	-25.4	-37.7	27	13.3	31	5,868	-7.4	-26.6	29	5.1	31	5,639	-11.1	-30.6	27	18.5	28	5,501	-22.7	-35.1	27	13.3	31	5,459	-7.5	-26.8	33	5.1																			
450	31	6,173	-30.5	-40.1	28	14.8	31	6,676	-12.9	-35.8	31	7.7	31	6,476	-22.3	-36.3	27	20.7	28	6,326	-27.9	-40.1	28	13.8	31	6,672	-12.8	-31.2	32	8.0																			
400	31	7,000	-36.8	-45.0	27	16.6	31	7,562	-19.7	-36.0	28	10.3	31	7,330	-24.6	-41.1	27	24.8	26	7,178	-33.8	-44.6	28	15.8	31	7,560	-18.7	-36.5	32	10.6																			
350	31	7,914	-43.6	-52.7	27	17.8	31	8,542	-26.5	-40.0	27	13.5	31	8,276	-35.7	-45.9	27	27.6	26	8,108	-46.6	-50.0	27	14.6	31	8,545	-25.1	-41.6	32	13.8																			
300	31	8,932	-50.4	-57.7	27	20.6	31	9,635	-34.6	-47.3	27	16.7	31	9,327	-43.1	-51.4	27	30.6	26	9,125	-48.1	-51.4	27	15.1	31	9,635	-32.1	-47.6	31	14.2																			
250	31	10,100	-56.9	-63.2	27	22.7	31	10,813	-40.3	-53.9	26	18.5	31	10,493	-49.9	-58.2	27	33.2	26	10,209	-55.0	-62.3	27	16.1	31	10,800	-45.0	-52.1	30	20.8																			
200	31	11,520	-56.9	-63.2	27	22.7	31	12,233	-40.3	-53.9	26	18.5	31	11,957	-49.9	-58.2	27	33.2	26	11,714	-56.4	-63.2	27	17.6	31	12,289	-52.0	-51.9	29	21.4																			
175	31	12,372	-54.4	-61.4	26	18.3	30	13,186	-46.6	-54.6	25	14.3	31	12,874	-57.7	-65.7	27	34.2	21	12,564	-55.7	-63.7	27	15.7	31	13,241	-58.8	-66.9	29	21.3																			
150	31	13,361	-54.4	-61.4	26	18.3	30	14,131	-46.6	-54.6	25	14.3	31	13,774	-59.2	-67.2	27	34.8	21	13,547	-55.7	-63.7	27	15.7	31	14,192	-60.0	-68.1	29	21.3																			
125	31	14,527	-55.2	-62.2	26	16.2	30	15,222	-47.1	-55.1	24	17.7	31	14,907	-62.5	-70.5	27	34.1	21	14,707	-56.3	-64.3	27	16.6	30	15,280	-57.2	-65.0	30	19.2																			
100	29	15,986	-56.6	-63.2	26	15.9	31	16,518	-47.9	-55.9	27	13.1	31	16,077	-65.8	-73.8	27	27.7	21	16,108	-58.6	-66.6	26	14.3	30	16,560	-58.0	-65.6	30	18.5																			
75	29	17,366	-56.7	-63.2	26	14.6	31	17,786	-46.6	-54.6	27	7.1	30	17,424	-64.6	-72.6	27	16.4	21	17,519	-57.7	-65.7	26	14.0	30	17,819	-61.0	-68.0	30	7.4																			
70	21	18,206	-57.1	-63.2	26	12.7	31	18,549	-47.1	-55.1	27	4.4	30	18,474	-65.4	-73.4	27	12.0	21	18,359	-58.4	-66.4	27	10.1	30	18,576	-57.4	-65.4	30	4.7																			
60	18	19,179	-57.5	-63.2	27	12.7	28	19,448	-46.6	-54.6	26	2.6	30	19,372	-65.6	-73.6	27	8.4	21	19,330	-57.4	-65.4	27	6.9	31	19,474	-71.2	-79.2	27	2.4																			
50	16	20,331	-57.9	-63.2	28	12.0	28	20,594	-46.6	-54.6	26	1.3	28	20,485	-61.9	-69.9	26	6.2	21	20,462	-57.4	-65.4	27	7.1	30	20,571	-64.9	-72.9	27	1.8																			
40	11	21,780	-57.9	-63.2	27	10.4	27	21,935	-46.7	-54.7	25	3.1	28	21,718	-69.8	-77.8	26	5.1	21	21,946	-56.8	-64.8	27	6.2	30	21,947	-60.5	-68.5	27	1.1																			
30	11	23,531	-58.1	-63.2	27	10.5	27	23,686	-46.7	-54.7	25	3.1	28	23,472	-72.1	-80.1	26	5.1	21	23,693	-56.8	-64.8	27	6.2	30	23,761	-61.1	-69.1	27	0.9																			
25	12	24,693	-57.7	-63.2	27	11.3	26	24,948	-50.5	-58.5	26	7.8	27	24,653	-69.4	-77.4	26	7.8	21	24,996	-52.9	-60.9	25	5.5	29	24,927	-53.1	-61.1	28	7.6																			
20	12	26,111	-55.7	-63.2	27	11.4	25	26,410	-47.7	-55.7	26	10.1	27	26,153	-65.8	-73.8	27	4.6	21	26,351	-50.5	-58.5	26	4.9	26	26,370	-44.5	-62.5	26	12.0																			
15	12	27,948	-54.4	-63.2	27	13.3	22	28,331	-44.1	-52.1	26	12.9	27	28,194	-64.8	-72.8	27	7.6	17	28,242	-46.5	-54.5	27	20.2	28	28,282	-44.5	-62.5	29	15.8																			
10	6	30,565	-49.7	-63.2	28	11	31,765	-37.1	-45.1	27	22	30,955	-36.8	-44.8	24	9.2							27	31,113	-40.5	-58.5	29	16.0																					



Average monthly values

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MAJURO, MARSHALL IS. 1011 MB										MEDFORD, OR 970 MB										MERIDA, MEXICO 1014 MB										MIDLAND, TX 915 MB										MONTERREY, MEXICO 963 MB									
040	31	3	26.7	24.0	06	6.3	31	401	4.9	2.0	31	2	31	11	19.6	18.1	07	1.0	31	874	7.5	.6	13	.3	31	423	15.2	11.6	04	.5																			
1000	31	57	27.4	24.7	06	7.7	31	134	31	134	31	134	31	134	19.2	10	9.0																																
050	31	55.1	22.8	20.6	06	11.5	31	576	6.6	2.9	30	.5	31	579	19.6	16.1	12	9.0																															
060	31	1,021	26.5	17.9	07	9.7	31	1,013	4.6	.5	17	.6	31	1,004	17.7	10.7	12	5.8	31	1,008	9.5	.4	16	.9	31	1,025	13.9	8.9	12	2.3																			
070	31	1,514	17.6	14.5	08	8.7	31	1,479	3.4	-2.0	18	2.1	31	1,532	16.0	4.4	14	2.7	31	1,482	9.3	-3.6	22	3.1	31	1,507	13.3	3.1	16	3.1																			
080	31	2,033	16.0	6.5	09	6.1	31	1,969	.9	-6.5	22	2.6	31	2,006	13.6	3.0	20	1.4	31	1,983	7.2	-5.7	24	5.0	31	2,016	12.2	-2.2	20	2.9																			
090	31	2,550	14.1	1.6	09	6.2	31	2,485	-2.2	-8.8	24	3.5	31	2,587	11.1	-2.7	24	1.6	31	2,512	4.7	-9.1	25	7.7	31	2,555	9.8	-7.7	24	3.9																			
1000	31	3,067	11.1	-2.7	10	6.3	31	3,002	-14.3	-3.3	25	5.1	31	3,160	8.8	-7.8	26	2.0	31	3,071	1.0	-13.6	25	8.5	31	3,125	6.9	-12.3	26	3.1																			
010	31	3,776	8.5	-7.0	10	6.3	31	3,607	-9.4	-18.9	26	5.1	31	3,767	6.5	-12.2	27	1.6	31	3,709	16.2	-12.9	26	11.1	31	3,759	12.6	-15.1	26	10.1																			
020	31	4,433	4.7	-10.5	09	6.6	31	4,222	-13.2	-25.3	26	4.9	31	4,415	.9	-17.0	28	6.7	31	4,291	-7.5	-21.7	25	13.2	31	4,370	-2.1	-17.1	26	12.1																			
030	31	5,136	.7	-13.4	09	7.0	31	4,879	-17.8	-28.7	26	5.2	31	5,109	-3.2	-20.8	26	9.2	31	4,963	-12.2	-28.3	25	15.5	31	5,055	-7.1	-21.2	25	14.8																			
040	31	5,897	-3.7	-19.6	09	7.7	31	5,684	-22.1	-33.1	26	4.7	31	5,855	-8.4	-25.9	27	11.2	31	5,688	-17.2	-34.0	26	18.4	31	5,791	-12.2	-28.3	26	16.9																			
050	31	6,702	-8.1	-24.7	10	8.0	31	6,340	-28.3	-39.1	26	4.2	31	6,665	-14.0	-30.0	27	13.7	31	6,467	-22.6	-37.5	26	21.1	31	6,588	-17.8	-31.6	26	19.9																			
060	31	7,627	-13.8	-31.5	11	7.7	31	7,182	-35.0	-44.1	27	4.1	31	7,587	-20.3	-34.8	27	16.5	31	7,320	-29.0	-41.7	26	24.0	31	7,458	-24.3	-36.8	26	22.9																			
070	31	8,632	-20.4	-36.4	11	8.7	31	8,102	-47.1	-56.8	27	5.9	31	8,507	-27.5	-42.7	28	16.4	31	8,245	-35.1	-46.9	26	28.1	31	8,370	-31.4	-44.1	26	28.6																			
080	31	9,755	-26.6	-43.8	12	9.7	31	9,125	-49.7	-60.7	29	5.9	31	9,609	-36.5	-49.0	27	20.7	31	9,318	-43.1	-55.2	26	32.1	31	9,491	-39.5	-47.8	26	31.2																			
090	31	10,102	-39.1	-41.8	12	10.7	31	10,293	-55.7	-67.7	29	7.6	31	10,650	-56.5	-69.7	27	25.0	31	10,524	-51.2	-64.2	26	36.1	31	10,719	-48.6	-56.7	27	35.6																			
1000	31	12,092	-51.4		21	2.7	31	11,704	-57.6		29	8.7	31	12,309	-54.5		27	27.6	31	11,953	-56.4		26	36.7	31	12,154	-56.5		26	37.1																			
010	31	13,377	-58.5		21	2.1	31	12,549	-61.2		29	9.7	31	13,155	-59.4		27	25.9	31	12,795	-57.2		26	35.8	31	12,997	-59.1		26	35.7																			
020	31	14,588	-66.5		21	1.4	31	13,508	-65.6		28	10.4	29	14,107	-64.4		26	24.7	31	13,768	-58.1		26	32.5	31	13,955	-62.7		26	33.5																			
030	31	15,940	-69.8		24	3.4	31	14,697	-57.2		26	9.7	29	15,207	-67.5		26	24.0	30	14,906	-62.1		26	28.5	31	15,068	-64.1		26	28.6																			
040	31	16,881	-82.1		25	4.2	31	15,792	-69.3		26	8.1	28	16,517	-75.5		27	19.3	30	16,273	-65.3		26	24.3	31	16,394	-72.2		26	22.2																			
050	31	17,924	-81.3		30	3.3	31	17,488	-59.7		29	7.0	28	17,800	-77.6		27	11.9	27	17,629	-65.3		26	15.0	30	17,702	-72.7		26	18.1																			
060	31	18,889	-74.2		17	5.4	31	18,324	-59.6		29	5.8	28	18,568	-71.8		27	7.7	27	18,444	-64.9		26	10.5	30	18,490	-71.6		26	8.4																			
070	31	19,866	-70.2		27	9.1	31	19,368	-60.2		25	5.2	28	19,471	-70.8		26	3.7	27	19,384	-64.8		27	7.2	29	19,411	-67.5		26	3.7																			
080	31	20,849	-65.7		27	7.1	31	20,327	-59.7		25	3.8	27	20,574	-64.0		04	.5	27	20,505	-61.9		27	6.2	29	20,521	-63.1		24	1.4																			
090	31	22,087	-60.7		26	5.0	31	21,487	-59.6		25	3.9	27	21,956	-61.7		05	.2	27	21,892	-60.2		28	5.7	28	21,906	-59.5		21	1.4																			
1000	31	23,875	-57.0		29	8.2	31	23,127	-59.4		25	2.9	27	23,787	-53.6		07	.2	27	23,646	-57.7		27	5.2	27	23,722	-57.1		01	1.1																			
010	31	24,928	-58.2		29	18.5	31	24,765	-61.1		29	3.0	26	24,968	-50.9		07	4.6	27	24,854	-55.0		27	6.6	27	24,895	-52.0		31	1.7																			
020	31	26,459	-60.6		29	22.9	31	26,171	-57.1		31	4.7	25	26,431	-48.2		08	.5	29	26,293	-50.8		27	7.9	25	26,350	-48.7		32	1.9																			
030	31	28,150	-45.3		29	28.2	31	28,004	-55.3		26	8.4	19	28,155	-48.4		09	9.3	26	28,192	-46.3		27	11.7	24	28,246	-43.7		01	.9																			
040	31	31,035	-39.6		17	30.7	31	30,769	-48.1		26	16.7	6	31,107	-37.4		10	31	30,941	-38.7		25	14.0	10	30,971	-37.5																							
1000	31																																																

# RAWINSONDE DATA

Average monthly values

MARCH 1979

MONETT, MO 964 MB										NASHVILLE, TN 997 MB										NORMAN, OK 1011 MB										NORTH PLATTE, NE 916 MB										OAKLAND, CA 1016 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Standard pressure surface mb.		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							



# RAWINSONDE DATA

Average monthly values

MARCH 1979

SALT LAKE CITY, UT 871 MB											SAN DIEGO, CA 1001 MB											SAN JUAN, P. R. 1016 MB										
Standard pressure surface mb					Resultant Wind					Standard pressure surface mb					Resultant Wind					Standard pressure surface mb					Resultant Wind							
No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p.s.									
1	1.74	3.3	1.1	15	2	1.5	61	6.8	5.1	71	4	31	1.28	2.3	-1.1	17	2.1	31	124	10.4	8.5	16	8									
2	2.11	-1.1	-1.1	15	2	1.5	157	7.8	6.1	75	4	31	1.28	2.3	-1.1	17	2.1	31	155	11.3	7.6	20	11									
3	2.48	-2.4	-2.4	15	2	1.5	568	7.1	1.4	27	5	31	565	10.8	3.8	20	1.2	31	584	10.8	2.0	1.2	31									
4	2.85	-3.4	-3.4	15	2	1.5	1,012	5.1	-1.2	24	1.9	31	1,014	8.9	-0.8	21	1.3	31	1,047	15.9	11.8	08	4.1									
5	3.22	-4.4	-4.4	15	2	1.5	1,476	2.8	-5.7	24	3.4	31	1,486	6.4	-0.9	23	2.0	31	1,531	12.9	9.1	07	3.0									
6	3.59	-5.4	-5.4	15	2	1.5	1,965	2.8	-8.4	24	4.1	31	1,981	4.0	-0.3	24	3.3	31	2,039	10.6	3.1	16	3.0									
7	3.96	-6.4	-6.4	15	2	1.5	2,480	-2.8	-12.6	25	4.7	31	2,505	1.4	-12.6	25	5.6	31	2,576	9.1	-3.0	01	1.0									
8	4.33	-7.4	-7.4	15	2	1.5	2,973	-1.1	-17.9	25	5.4	31	3,055	-1.7	-17.6	25	5.6	31	3,185	6.7	-9.9	36	1.7									
9	4.70	-8.4	-8.4	15	2	1.5	3,460	-2.0	-20.7	26	5.5	31	3,641	-5.1	-20.0	26	6.2	31	3,751	3.7	-13.1	32	2.4									
10	5.07	-9.4	-9.4	15	2	1.5	3,948	-1.1	-24.6	27	5.2	31	4,265	-9.1	-25.1	26	7.8	31	4,397	-5	-17.9	29	4.3									
11	5.44	-10.4	-10.4	15	2	1.5	4,436	-1.1	-27.9	27	5.9	31	4,933	-13.5	-28.8	26	9.6	31	5,090	-3.4	-22.9	30	6.0									
12	5.81	-11.4	-11.4	15	2	1.5	4,924	-1.1	-31.2	27	5.9	31	5,650	-16.7	-33.6	27	11.3	31	5,837	-0.8	-26.4	30	8.4									
13	6.18	-12.4	-12.4	15	2	1.5	5,412	-1.1	-34.5	27	5.6	31	6,427	-24.3	-38.5	27	13.6	30	6,644	-13.3	-31.4	29	11.2									
14	6.55	-13.4	-13.4	15	2	1.5	5,900	-1.1	-37.8	27	5.8	31	7,179	-35.6	-45.5	27	7.6	31	7,274	-31.0	-43.2	27	15.7									
15	6.92	-14.4	-14.4	15	2	1.5	6,388	-1.1	-41.1	26	5.5	31	6,696	-42.9		27	7.9	30	8,214	-37.7	-40.2	27	19.4									
16	7.29	-15.4	-15.4	15	2	1.5	6,876	-1.1	-44.4	26	5.5	31	9,116	-50.6		28	7.4	30	9,258	-44.8		27	24.4									
17	7.66	-16.4	-16.4	15	2	1.5	7,364	-1.1	-47.7	26	5.3	31	10,286	-56.7		28	10.6	30	10,459	-51.5		27	29.7									
18	8.03	-17.4	-17.4	15	2	1.5	7,852	-1.1	-51.0	26	5.9	31	11,694	-67.4		28	13.1	30	11,893	-55.0		26	32.7									
19	8.40	-18.4	-18.4	15	2	1.5	8,340	-1.1	-54.3	26	7.0	31	12,543	-55.7		28	14.5	30	12,745	-55.5		26	31.1									
20	8.77	-19.4	-19.4	15	2	1.5	8,828	-1.1	-57.6	26	7.9	31	13,526	-55.4		27	14.0	30	13,725	-57.1		26	30.6									
21	9.14	-20.4	-20.4	15	2	1.5	9,316	-1.1	-60.9	26	8.4	31	14,683	-57.3		27	13.9	30	14,872	-60.0		27	25.2									
22	9.51	-21.4	-21.4	15	2	1.5	9,804	-1.1	-64.2	26	7.6	31	16,087	-59.1		27	12.9	30	16,252	-63.4		26	19.3									
23	9.88	-22.4	-22.4	15	2	1.5	10,292	-1.1	-67.5	26	5.9	31	17,484	-59.8		27	10.3	29	17,620	-64.4		26	12.6									
24	10.25	-23.4	-23.4	15	2	1.5	10,780	-1.1	-70.8	26	5.9	31	18,335	-59.9		27	9.5	29	18,535	-63.9		26	9.6									
25	10.62	-24.4	-24.4	15	2	1.5	11,268	-1.1	-74.1	26	5.1	31	19,261	-59.6		27	7.4	29	19,394	-62.0		27	6.1									
26	11.00	-25.4	-25.4	15	2	1.5	11,756	-1.1	-77.4	26	4.0	31	20,241	-59.9		28	6.8	25	20,528	-60.9		26	4.3									
27	11.37	-26.4	-26.4	15	2	1.5	12,244	-1.1	-80.7	26	3.4	31	21,614	-60.2		28	5.5	25	21,919	-60.0		28	2.0									
28	11.74	-27.4	-27.4	15	2	1.5	12,732	-1.1	-84.0	26	3.0	31	23,676	-59.6		29	5.0	22	23,726	-57.4		28	4.4									
29	12.11	-28.4	-28.4	15	2	1.5	13,220	-1.1	-87.3	26	5.1	31	24,885	-59.2		29	5.1	21	24,885	-55.4		26	2.9									
30	12.48	-29.4	-29.4	15	2	1.5	13,708	-1.1	-90.6	26	5.3	31	26,119	-57.6		29	5.0	20	26,318	-53.0		27	1.5									
31	12.85	-30.4	-30.4	15	2	1.5	14,196	-1.1	-93.9	26	8.6	25	27,696	-53.8		29	13.5	19	28,183	-47.8		27	13.2									
32	13.22	-31.4	-31.4	15	2	1.5	14,684	-1.1	-97.2	26	14.3	12	30,487	-45.5		27	21.5	7	30,838	-43.0		14	31,120									

## Average monthly values

MARCH 1979

WASHINGTON DULLES INT. AP 1010 MB										WATCROSS, GA 1015 MB										WEST PALM BEACH, FL 1015 MB										WINNEMUCA, NV 868 MB										WINSLOW, AZ 851 MB									
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps																			
5FC	3	85	2.7	-6.16	16	31	44	9.5	7.5	-5	31	17	31	167	12.4	12.4	09	1.8	31	1,312	4	-4.6	10	7	31	1,487	1	-4.8	19	1.6																			
5FC	3	181.5	2.7	-6.16	16	31	17	12.8	8.4	-5	31	17	31	167	12.4	12.4	09	1.8	31	1,312	4	-4.6	10	7	31	1,487	1	-4.8	19	1.6																			
5FC	3	98.5	2.7	-6.16	16	31	596	12.4	2.9	2.6	31	606	15.5	13.0	10	2.7																																	
5FC	3	1,021	3.5	-3.4	26	5.9	1,008	10.1	-1	25	4.0	1,062	12.4	6.2	12	2.2																																	
5FC	3	1,083	1.6	-6.5	27	7.4	1,122	7.9	-2.1	25	5.3	1,150	10.4	4.1	17	.31																																	
5FC	3	1,970	1.0	-10.5	27	8.6	2,020	5.8	-6.7	26	6.4	2,084	9.1	-8.1	28	1.9	31																																
5FC	3	7,485	-2.2	-13.7	27	9.5	7,566	3.6	-10.5	26	8.7	7,577	7.3	-11.7	29	1.9	31																																
5FC	3	1,031	-1.7	-17.1	28	10.6	1,103	10.8	-13.7	27	10.7	1,141	4.1	-14.5	32	5.8	31																																
5FC	3	3,611	-7.7	-19.4	26	11.7	3,694	-3.1	-16.1	26	11.8	3,740	9	-16.4	28	7.7	31																																
5FC	3	4,230	-11.7	-22.6	26	12.5	4,323	-8.9	-21.3	26	12.9	4,378	-3.0	-19.7	28	10.0	31																																
5FC	3	4,891	-15.9	-25.6	26	13.7	4,997	-11.2	-25.5	26	14.3	5,061	-1.7	-23.4	28	12.5	31																																
5FC	3	5,602	-20.8	-31.6	27	15.1	5,722	-18.8	-27.8	27	16.4	5,796	-12.4	-27.6	28	16.2	31																																
5FC	3	6,375	-26.2	-36.3	27	15.9	6,507	-27.1	-34.1	27	16.8	6,593	-17.7	-31.4	28	18.9	31																																
5FC	3	7,214	-32.6	-44.2	27	17.1	7,363	-37.9	-38.5	27	22.4	7,446	-23.1	-36.6	28	21.6	31																																
5FC	3	8,143	-39.7	-45.7	47	19.7	8,312	-34.8	-45.8	27	23.8	8,430	-10.6	-42.8	28	24.4	31																																
5FC	3	9,177	-47.3	-27	22.5	31	9,368	-42.5	-48.6	27	28.8	9,505	-38.7	-50.2	28	29.2	30																																
5FC	3	10,361	-55.1	27	25.8	31	10,577	-50.7	27	32.7	30	10,734	-47.5	28	32.9	30	10,317	-56.0	29	7.4	31	9,216	-47.1	27	21.9	27	28.0	30	10,317	-5																			
5FC	3	11,773	-58.6	26	27.4	31	12,008	-57.4	27	35.0	30	12,181	-55.4	28	34.6	30	11,727	-57.8	29	10.3	31	11,832	-55.5	27	28.9	27	28.9	30	11,832	-55.5																			
5FC	3	12,617	-57.1	26	28.5	30	12,848	-56.1	27	37.6	30	13,028	-54.1	28	36.1	30	12,578	-55.8	28	11.8	31	12,685	-55.1	27	28.9	27	28.9	30	12,685	-55.1																			
5FC	3	13,594	-56.5	27	22.1	31	13,818	-56.3	27	37.0	30	13,993	-61.0	27	34.1	30	13,557	-55.5	28	13.2	31	13,667	-56.5	27	26.9	27	26.9	30	13,667	-56.5																			
5FC	3	14,748	-57.6	27	20.6	31	14,955	-63.5	27	30.6	30	15,111	-66.7	27	29.4	30	14,715	-57.3	28	12.8	31	14,817	-59.4	27	23.2	27	23.2	30	14,817	-59.4																			
5FC	3	16,149	-59.9	27	18.7	31	16,306	-67.4	27	24.9	30	16,443	-71.8	27	23.4	30	16,118	-59.4	28	9.7	31	16,204	-62.1	27	17.8	27	17.8	30	16,204	-62.1																			
5FC	3	17,540	-60.5	27	13.3	31	17,650	-67.5	27	16.6	30	17,756	-71.6	28	15.6	30	17,513	-59.8	28	8.2	31	17,576	-62.9	26	13.1	26	13.1	30	17,576	-62.9																			
5FC	3	18,377	-60.6	26	10.8	31	18,456	-66.5	27	11.4	30	18,586	-69.7	28	10.8	28	18,348	-59.8	28	6.7	31	18,401	-60.0	27	9.7	27	9.7	30	18,401	-60.0																			
5FC	3	19,334	-59.8	28	9.6	31	19,392	-65.1	28	7.5	30	19,475	-66.2	29	5.1	28	19,312	-59.4	27	6.1	31	19,356	-61.6	26	7.8	26	7.8	30	19,356	-61.6																			
5FC	3	20,475	-59.2	28	6.6	31	20,512	-61.8	29	4.6	30	20,590	-62.3	31	2.0	28	20,454	-59.8	27	6.0	29	20,487	-61.2	26	4.9	26	4.9	30	20,487	-61.2																			
5FC	3	21,676	-58.2	28	6.6	30	21,952	-56.6	31	3.0	29	21,982	-57.8	32	3.7	27	21,851	-59.2	28	4.7	29	21,875	-60.7	29	3.7	29	3.7	30	21,875	-60.7																			
5FC	3	23,704	-55.9	28	6.2	29	23,716	-56.1	31	3.2	28	23,814	-53.7	35	1.9	24	23,651	-59.2	29	4.4	28	23,683	-58.1	28	5.7	28	5.7	30	23,683	-58.1																			
5FC	3	24,671	-55.6	27	6.5	27	24,884	-53.6	31	1.5	27	24,997	-51.0	35	1.2	22	24,789	-58.4	28	6.4	28	24,838	-56.1	28	6.7	28	6.7	30	24,838	-56.1																			
5FC	3	26,320	-53.4	26	11.5	27	26,333	-50.2	28	2.1	28	26,468	-47.4	35	1.0	22	26,201	-56.1	28	3.0	27	26,217	-52.3	26	3.1	26	3.1	30	26,217	-52.3																			
5FC	3	28,407	-49.8	26	11.7	27	28,438	-48.4	27	1.7	22	28,585	-47.2	37	.5	19	28,072	-51.4	27	14.8	21	28,145	-47.3	27	17.1	27	17.1	30	28,145	-47.3																			
5FC	3	30,914	-46.2	26	11.3	27	31,093	-36.9	27	3.1	16	31,151	-42.2	27			7,307,63	-44.8																															

[illegible]



# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

MARCH 1979

MAUNA LOA OBSERVATORY, HA										TUCSON, AZ									
Sun's zenith distance										Sun's zenith distance									
Date	A M				*	P M				Date	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
Air mass										Air mass									
	3.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
3-----	1.13	1.26	1.35	1.48	1.59	-----	-----	-----	-----	3-----	-----	.95	1.09	1.27	1.45	1.31	1.14	1.02	.93
4-----	1.19	1.28	1.36	1.48	1.58	-----	-----	-----	-----	4-----	.94	1.04	1.16	1.31	1.45	1.30	1.16	1.03	.95
5-----	1.20	1.28	1.32	1.48	1.60	-----	-----	-----	-----	5-----	.99	1.09	1.20	1.34	1.48	1.31	1.16	1.04	.93
6-----	1.21	1.30	1.37	1.46	1.58	1.60	1.37	1.29	1.26	6-----	.97	1.07	1.19	1.30	1.47	1.29	1.15	1.04	.95
7-----	1.19	1.28	1.37	1.48	1.58	-----	-----	-----	-----	7-----	.95	1.05	1.18	1.32	1.47	1.32	1.12	.99	.87
8-----	1.20	1.31	1.43	1.50	-----	1.49	1.38	1.31	1.24	8-----	.93	1.05	1.17	1.32	1.43	-----	1.13	-----	-----
15-----	1.14	1.22	1.34	1.46	-----	-----	-----	-----	-----	10-----	.92	1.01	1.13	1.28	1.40	1.27	1.10	.97	.86
16-----	-----	-----	-----	-----	1.58	1.47	1.32	1.23	1.12	11-----	.76	.86	.99	1.20	1.34	1.22	1.04	.90	.77
22-----	1.26	1.32	1.38	1.51	1.57	1.45	1.36	1.28	1.25	12-----	.85	.96	1.09	1.24	1.39	1.20	1.04	.92	.80
23-----	1.08	1.21	1.35	1.48	1.64	1.47	1.38	1.30	1.22	13-----	-----	.87	-----	-----	-----	-----	-----	-----	-----
29-----	1.08	1.17	1.28	1.41	1.65	1.48	1.35	1.25	1.16	14-----	.90	1.01	1.13	1.26	1.43	1.26	1.08	.95	.84
30-----	-----	-----	-----	-----	1.58	1.55	1.35	1.26	1.17	15-----	.85	.95	1.07	1.26	1.42	1.24	1.10	.98	.89
Aver-	1.17	1.26	1.22	1.48	1.60	1.50	1.36	1.27	1.20	17-----	-----	-----	1.10	1.24	-----	1.21	-----	-----	-----
ages										23-----	-----	.96	1.06	1.22	1.42	1.24	1.08	.93	.82
										24-----	.76	.87	1.02	1.20	1.40	1.25	1.11	1.00	.90
										25-----	.89	1.00	1.12	1.28	-----	1.26	1.12	1.01	.91
										26-----	.82	.92	1.09	1.25	1.44	1.26	1.10	-----	-----
										29-----	-----	-----	1.17	-----	1.17	.97	.85	.74	.87
										30-----	.84	.97	1.11	1.26	-----	1.24	1.09	.96	.87
										31-----	.82	.93	1.07	1.24	1.43	-----	-----	-----	-----
										Aver-	.88	.98	1.11	1.26	1.43	1.26	1.10	.97	.87
										ages									

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . .	-36	-25	5	2	8	19	3	29	4	7	-10	-28	19	-5	34	19	47	-13	-47	-27	-15	3	23	39	63	52	40	102	-88	-59	66	8

# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

- 1 foot = 0.3048 meters
- °F. =  $9 \times ^\circ\text{C} + 32$
- 1 inch = 25.4 millimeters
- 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- † No Storm Data Report received for this State.
- ◊ Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygriators. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

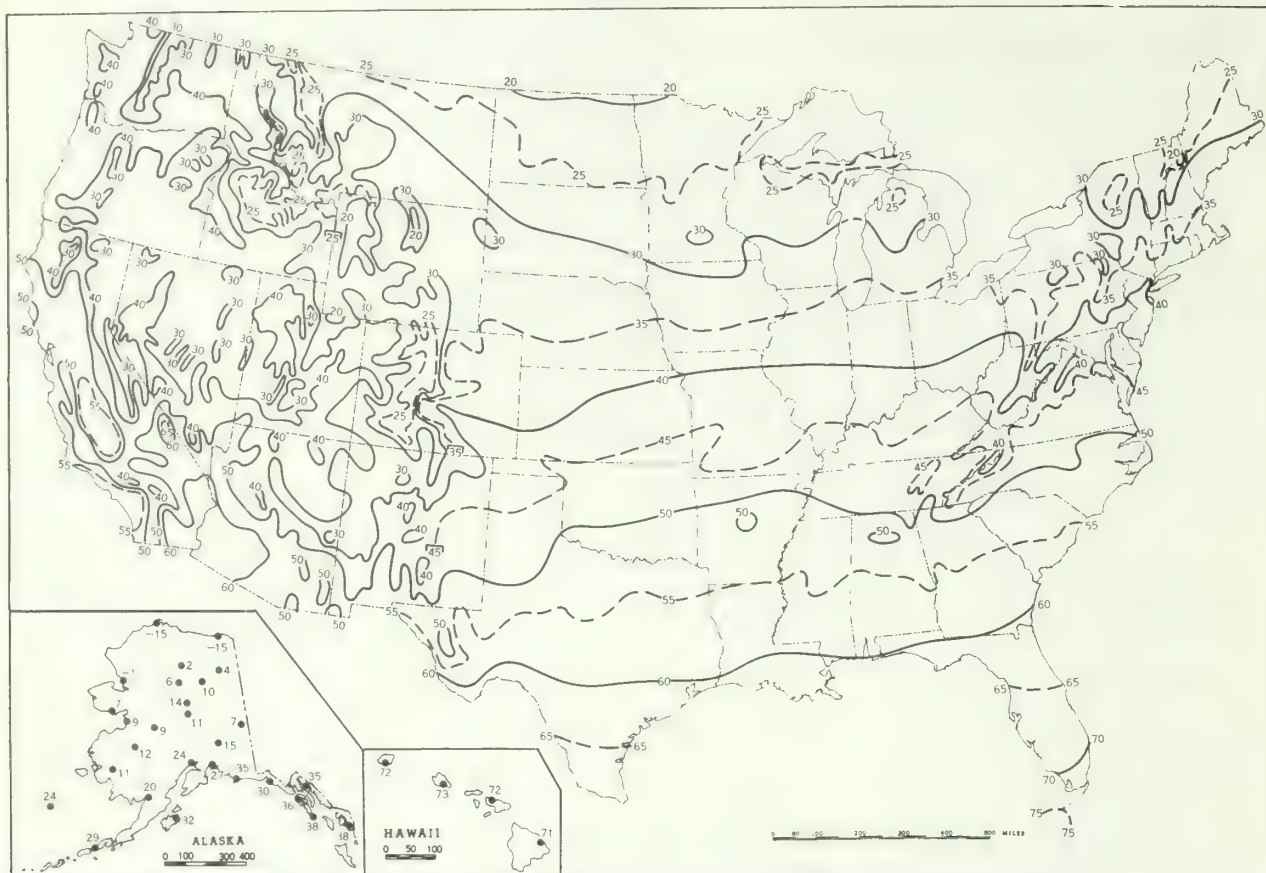
( ) Clouds Present	DM Moderate Dust	HM Moderate Haze	KS Slight Smoke
* Values corresponding to true solar noon	DS Slight Dust	HS Slight Haze	M Moderate Haze-indeter-
BD Blowing Dust	F Fog	I Intense Haze-indeterminable	minable
BN Blowing Sand	CF Ground Fog	K Smoke	N Sand
D Dust	H Haze	KI Intense Smoke	S Slight Haze-indeter-
DI Intense Dust	HI Intense Haze	KM Moderate Smoke	minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), March.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), March 1979

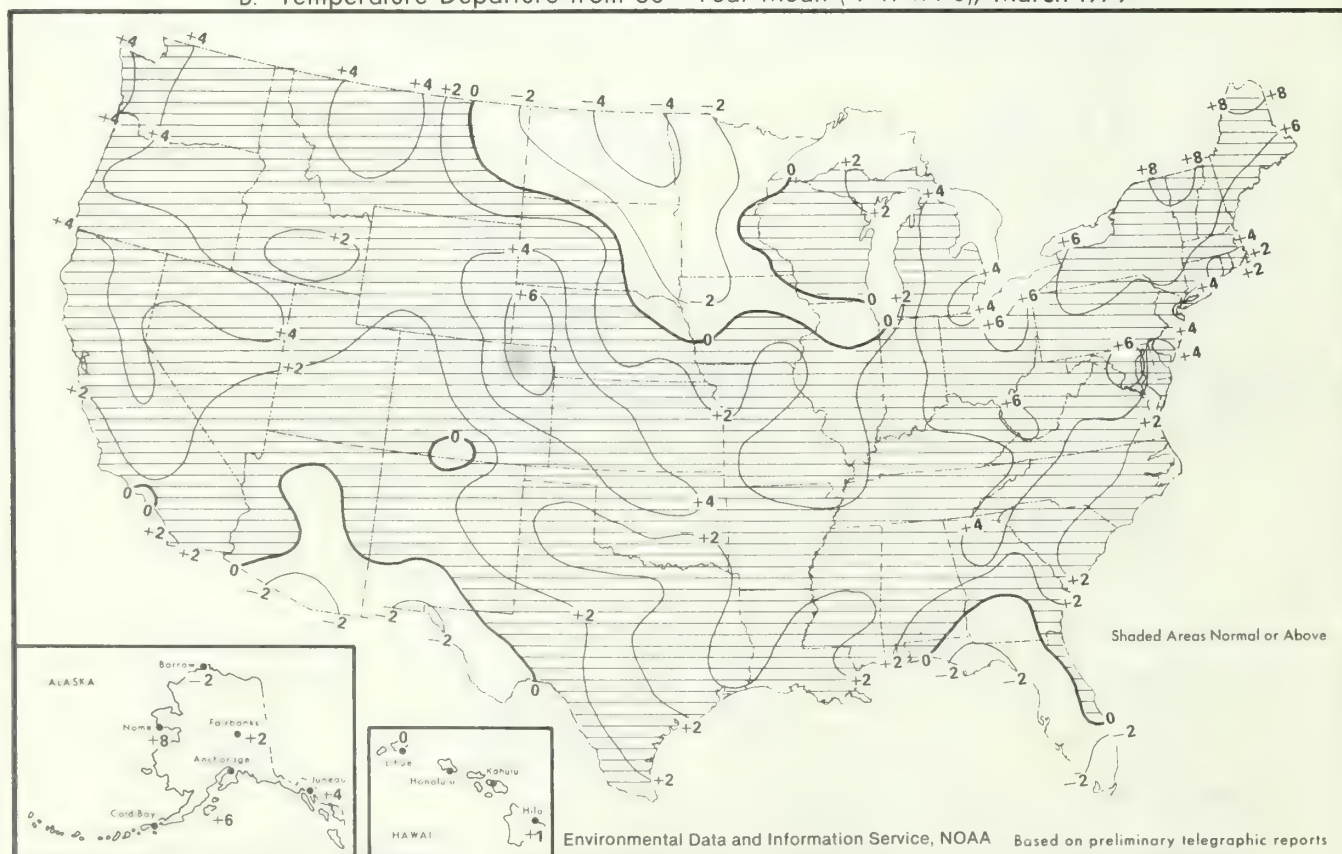
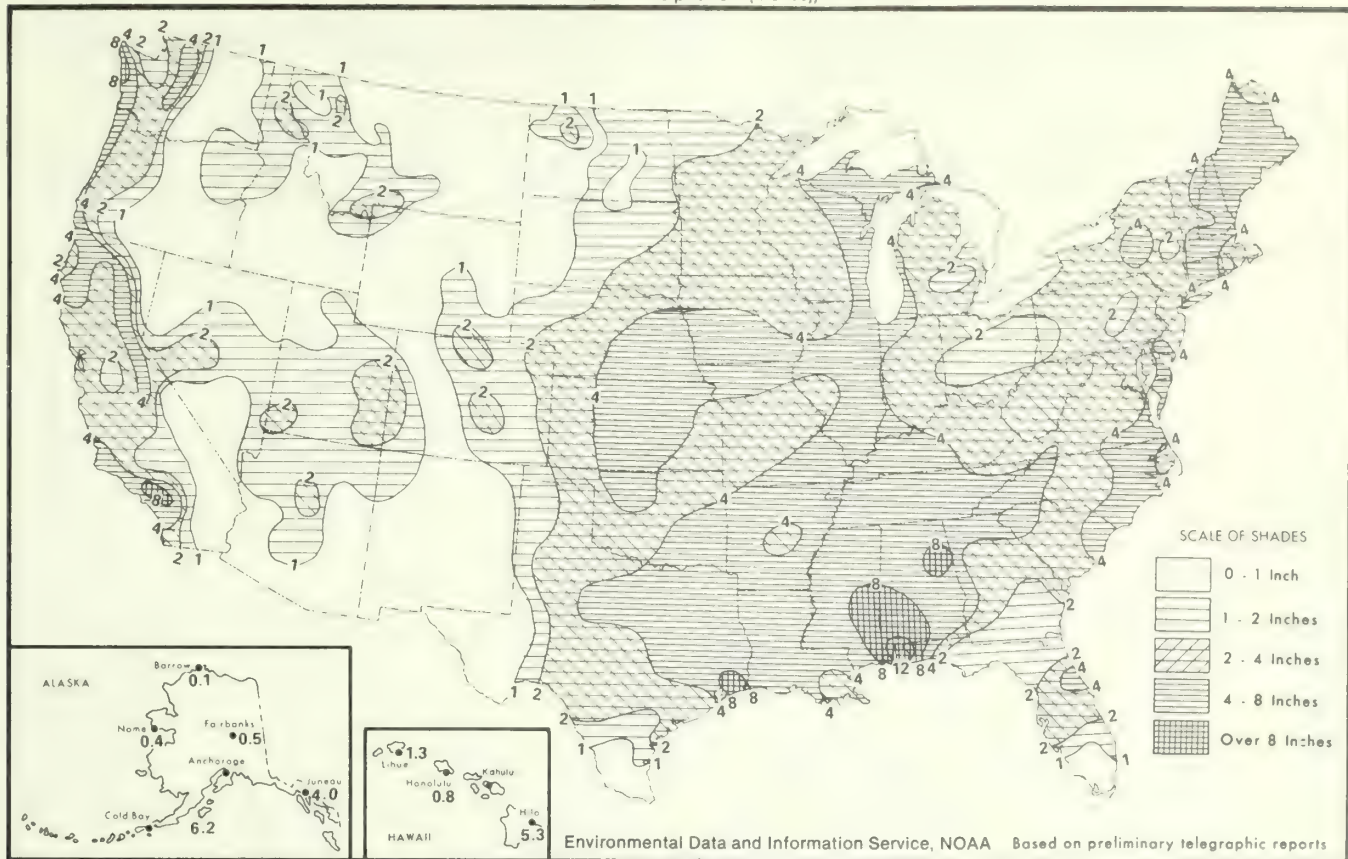


Chart II. A. Total Precipitation (Inches), March 1979



B. Percentage of Normal Precipitation, March 1979

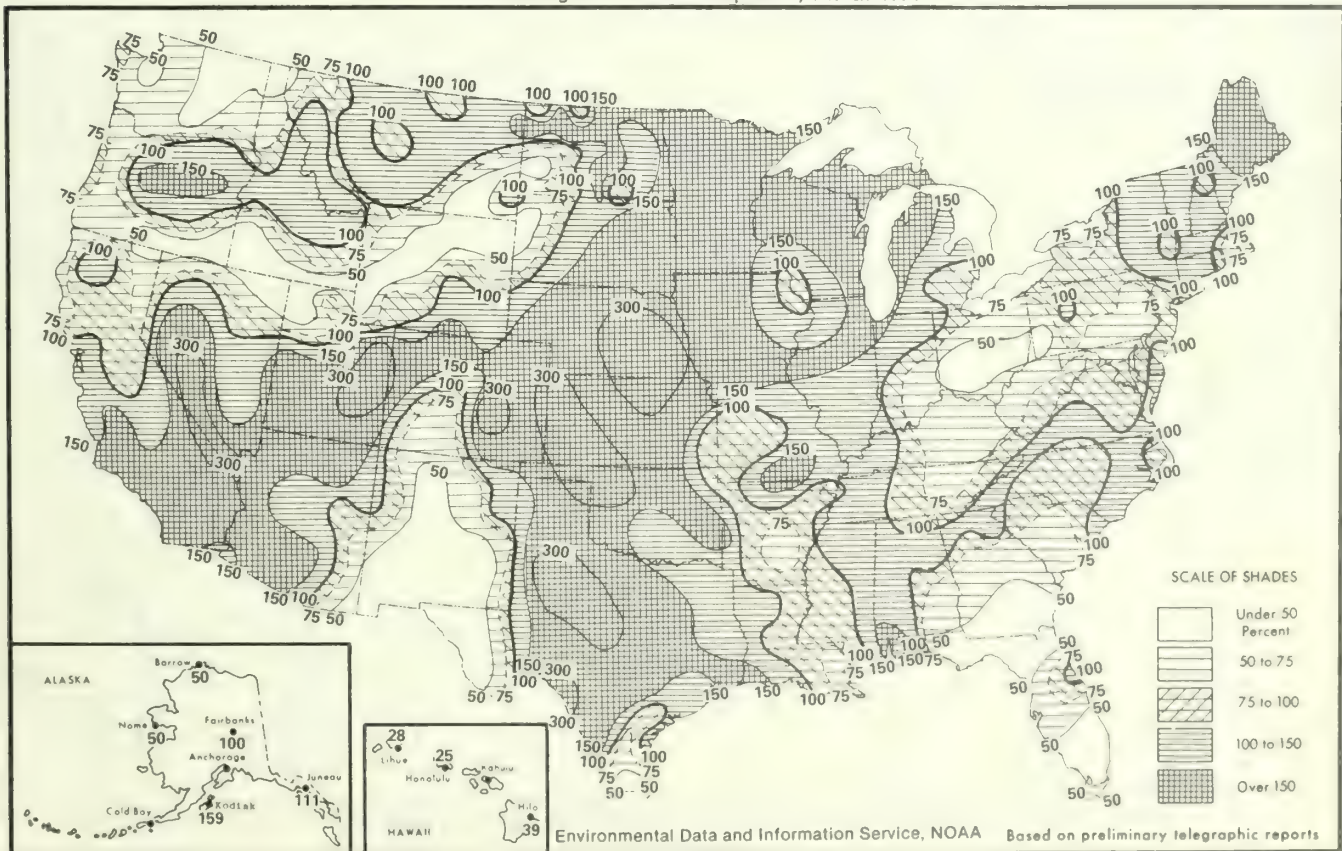




Chart III. Tracks of Centers of Anticyclones at Sea Level, March 1979

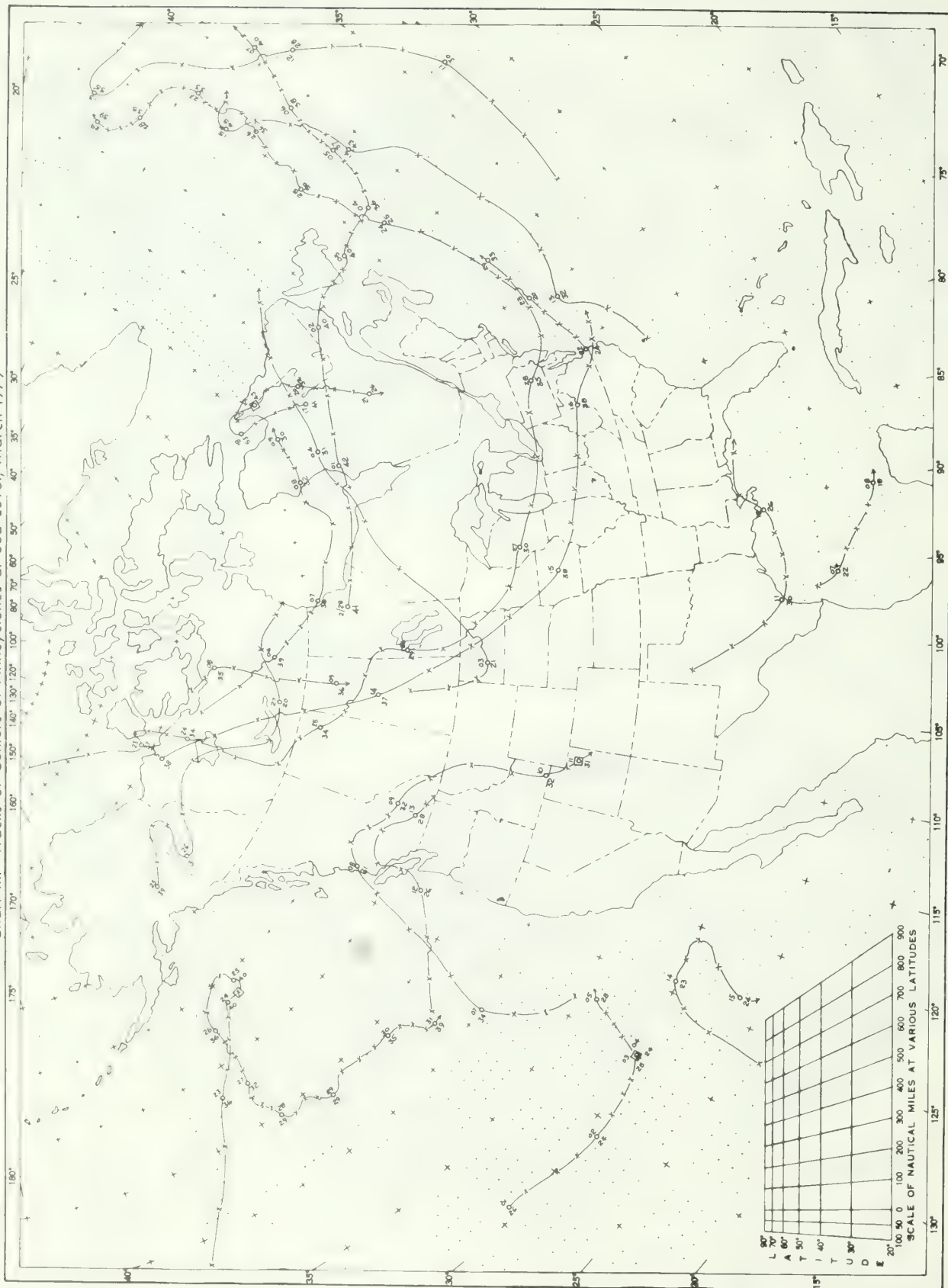
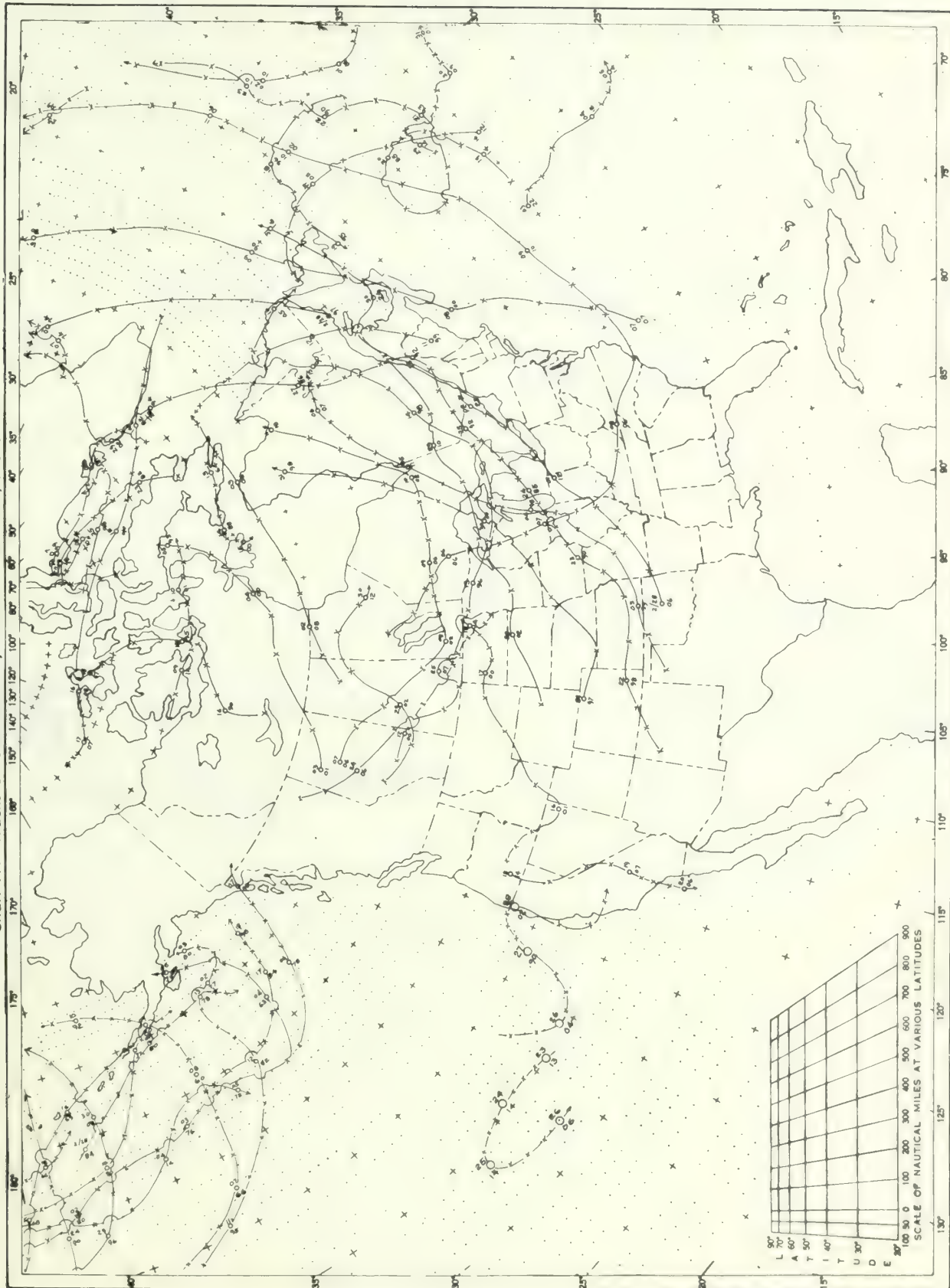


Chart IV. Tracks of Centers of Cyclones at Sea Level, March 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

APRIL 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** April averaged near-normal temperatures west of the Rockies, but most areas to the east were cooler than normal. The northern Plains averaged 6 to 8° cooler, while the western portion of the Corn Belt became 4 to 5° cooler. New England and Florida were slightly warmer than normal.

Moderate to heavy rain accumulated from the Sierras in California northward and across the Plateau and northern Rockies. Most areas east of the Rockies had normal or above rainfall. Severe weather hit most sections of the Nation east of the Rockies. Severe flooding occurred in several areas, and record floods plagued North Dakota, southeastern Texas, Mississippi, Alabama, and Florida.

In the early part of April's first week, a series of storm systems moved rapidly from western Canada south-eastward into the central United States and then eastward. Cool air met warm, moist Gulf air triggering heavy rain which reached into the South along a line from eastern Texas to the Ohio Valley and the Appalachians. More than 5 inches caused flooding in Mississippi and Alabama. A Pacific storm dumped rain in the Northwest and snow in the northern Rockies later in the week. April began with near-normal temperatures in the West and Southeast. Cold weather returned to the northern Plains and pushed southward into Texas.

The second week (9th-15th) also brought heavy rain in the South. A storm system moved into the Pacific Northwest causing rain with snow in the higher elevations of the Plateau and northern Rockies. A new storm center formed in Colorado and moved northeastward trailing behind it a cooler air mass which moved eastward. Again, the cooler air moving into warmer, moist air set off heavy rain. More than 2 inches fell from Oklahoma to Lake Michigan. As the cooler

air moved through the South, 5 inch-plus rains fell from northern Mississippi through northern Georgia. Some points in northeastern Mississippi measured 18 inches of rain during the week; severe flooding resulted.

Another weather system moved onto the central West Coast early in the week after mid-April (16th-22d). Rain fell along the coast northward and through the Plateau and northern Rockies. The frontal system moved through the Southwest remaining essentially dry but showers and thunderstorms broke out in western Texas as the front moved into that area. At mid-week, the front sat nearly north-south from central Manitoba in Canada to western Texas and moved slowly eastward. Light rain or showers fell along the front; the only severe weather occurred from central Texas through Louisiana, where some areas recorded over 10 inches of rain during the week. Temperatures in most of the Nation ranged warmer than normal, as much as 12° in the eastern slopes of the central Rockies. The East and West Coasts were near normal.

The last week of the month contained a mixture of weather systems. The old frontal system weakened and moved off the East Coast, but an intense low pressure system formed on its trailing end in Louisiana and edged eastward carrying heavy rain and severe weather to the Southeast. Almost at the same time, a disturbance moved through the southern Gulf of Mexico and turned northward to deluge southeastern Florida. Considerable crop damage resulted from the very heavy rain and flooding. Another front from the West caused heavy rain and severe weather through the Mississippi Valley and in southern Nebraska. Cooler air moved into the Plains and the South, but the West and New England remained warm.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

APRIL 1979

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Dothan	90	21	Dothan	-7	10	Dothan	22.00	Mobile WSO AP	4.05
Alaska	Barrow	5	30	Barrow	-42	14	Barrow	6.64	2 Stations	T
Arizona	4 Stations	89	25+	Basque Lake	1	44	Suntree Mountain	2.07	4 Stations	.00
California	4 Stations	89	25+	Leak Hill	25	5	Crossett 2 SSE	15.68	Silam Springs	2.96
Colorado	1 Station	89	26	White Mountain 2	-5	18	Gasquet Ranger Station	7.55	95 Stations	.00
Connecticut	1 Station	89	24+	Elm Grande Reservoir	-28	2	Stevens Dam	5.47	3 Stations	1
Delaware	1 Station	89	24+	Wilmington Reservoir	11	8	Stevenson Dam	7.97	Falls Village	4.04
Florida	1 Station	89	24+	Smith Creek	27	8	Wilmington Reservoir	5.50	Bridgeville 1 NW	3.14
Georgia	Douglas	96	16	2 Stations	30	4	Fort Lauderdale	19.47	2 Stations	.40
Idaho	2 Stations	81	27+	Mauna Kea Obs 111.2	18	15	Waleska	15.51	Idaho Falls	2.08
Illinois	2 Stations	81	27+	Idaho Park Dam	-6	19	Kapala Ranch 36	23.41	Maunakea Obs 111.2	.15
Indiana	Charlestown Ord Plant	86	21	Kewanee 1 E	7	6	Pierce	4.39	Lifton Pumping Station	.02
Iowa	1 Station	81	20+	2 Stations	14	74	Mount Pleasant	10.84	Tulsa Dam 11	2.79
Kansas	Hugoton	91	24	Waukon	7	6	Tell City Power Plant	10.04	Fort Wayne WSO AP	2.17
Kentucky	1 Station	89	24	2 Stations	11	4	Vinton	5.33	Mapleton 4 NNW	1.50
Louisiana	1 Station	89	24	2 Stations	31	5	Caldwell	4.95	Richfield 10 WSW	.52
Maryland	Cumberland 2	85	5	2 Stations	31	5	Columbus	13.26	Ashland	2.81
Massachusetts	Chester 2	85	24	2 Stations	31	5	Bayou Sorrel Lock	18.53	New Orleans 3 P-S 6	3.86
Michigan	3 Stations	79	25	University	1	9	Jackman	9.67	Potomac Filter Plant	1.95
Minnesota	Wiggins 3 SSE	89	17	2 Stations	15	7	New Haven	7.10	Nantucket FAA AP	2.99
Mississippi	Carthage	87	20+	2 Stations	20	6	Montree	6.24	Kenton	.40
Montana	1 Station	80	18+	Elk Park	-10	1	Thief River Falls	4.42	Longviewville St John P	.33
Nebraska	1 Station	80	19	Chambers	11	6	Laurensville	24.10	Bay Saint Louis	4.27
Nevada	Concord WSO AP	87	28+	Conover Valley	7	3	New Madrid	12.75	Trenton	1.84
New Hampshire	1 Station	82	1	Mount Washington	-1	8	Portales	3.96	Western Montana Br Station	.40
New Jersey	1 Station	82	1	Lower Hills Service Bldg	21	4	Bertrand	5.79	Agate 3 E	.17
New Mexico	1 Station	93	25+	Chama	1	2	Carlinville 2 SW	2.12	10 Stations	.00
New York	1 Station	88	24	Franklinville 1 SSW	2	8	Lake Toxaway 2 SW	12.76	Lancaster	1.65
North Carolina	1 Station	88	24	Grandfather Mountain	-1	7	Potomac 3 S	5.24	New Milford	2.10
North Dakota	1 Station	85	18	2 Stations	-22	64	Portsmouth 3 N	2.48	8 Stations	.00
Ohio	1 Station	85	26+	Carpenter 4 NW	15	7	Prattville 1 NW	6.79	Prattville 1 NW	01.59
Oklahoma	1 Station	92	25	Hooker	7	4	Reeder 13 N	4.82	Reeder 13 N	.70
Oregon	1 Station	89	26	Heaven 1 SE	11	6	2 Stations	6.88	2 Stations	2.50
Pennsylvania	1 Station	89	25	Government Camp	11	6	Goodwell Research Station	7.86	Goodwell Research Station	.54
Rhode Island	2 Stations	95	22+	Bakerstown 3 WNW	49	1	Ontario K&P	12.72	Ontario K&P	.26
South Carolina	1 Station	74	23	Cerro Maravilla	49	1	Raymond	5.75	Raymond	1.14
South Dakota	2 Stations	87	24	2 Stations	28	10	Ponce City	15.12	Ponce City	.00
Tennessee	1 Station	88	24	Caesars Head	-5	3	Block Island WSO AP	5.69	Block Island WSO AP	4.02
Texas	1 Station	103	12	Deerfield 4 NW	7	24	Brookgreen Gardens	14.86	Brookgreen Gardens	1.60
Utah	1 Station	80	25	Frederick 1 NW	1	4	Rapid City WSO AP	3.54	Rapid City WSO AP	.31
Vermont	1 Station	80	25	Silver Lake Brighton	-8	13	Greenville 130 Station	12.90	Greenville 130 Station	3.43
Virginia	2 Stations	80	25	Mount Mansfield	1	8	10 Stations	19.30	6 Stations	.00
Washington	2 Stations	92	30+	Big Meadows	16	7	Snowbird	6.30	6 Stations	.00
West Virginia	1 Station	89	22	3 Stations	16	1	6 Stations	6.27	6 Stations	1.72
Wisconsin	1 Station	89	22	2 Stations	16	1	6 Stations	7.54	6 Stations	1.88
Wyoming	1 Station	85	18	Spencer	16	1	6 Stations	5.73	6 Stations	.72
								10.13	6 Stations	.03
								5.83	6 Stations	1.65
								6.32	6 Stations	.46
								2.61	6 Stations	T

# CLIMATOLOGICAL DATA

## METRIC UNITS

APRIL 1972

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation					Wind			No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 32.2 °C or above	Min. 0 °C or lower	No. of days	Average dew point	Average relative humidity			Total	Departure from normal	Greatest in 24 hours	No. of days	Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction	Date	Fastest mile (1.6 kilometers)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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## METRIC UNITS

APR 11 1979

[illegible]

## METRIC UNITS

APR 16 1979

State and Station	Pressure			Temperature				Precipitation				Wind			No. of days (sunrise to sunset)																			
	Station Q	Sea level	Elevation (ground)	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date		No. of days	Snow, ice pellets			Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1.6 kilometers)													
											Max 32.2 °C or above	Min. 0 °C or lower			Average relative humidity	Total						Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total	Maximum depth on ground							
																												°C	°C	%	mm	mm	mm	mm
ILLINOIS SPRINGFIELD	179	994.2	1016.8	15.2	5.2	10.2	-1.5	26.1	20	-5.0	6	0	4	4.4	70	182	77	113	12	5	Y	0.4	21	16.1	NW	5	4	8	18	7.6	48	Possible sunshine		
INDIANA EVANSVILLE	116	1003.1	1017.0	17.6	7.2	12.4	-1.3	27.2	20	-1.7	6	0	2	6.1	68	154	51	37	13	6	0	0	0.1	4	18.8	SE	12	6	7	17	6.9	52	Cloudy, 8-10	
FORT WAYNE	241	984.8	1017.1	13.6	2.9	8.2	-1.4	23.9	12	-7.2	7	0	8	2.8	70	55	-35	17	17	2	7	Y	1.0	26	20.1	N	5	4	4	22	8.5	61		
INDIANAPOLIS	241	987.8	1017.2	15.0	4.8	9.9	-1.1	26.1	12	-5.6	6	0	6	5.6	79	80	-19	31	17	5	10	Y	0.5	25	17.9	NW	5	4	5	21	7.8	40		
SOUTH BEND	236	988.2	1016.6	12.9	2.8	7.9	-1.4	25.0	12	-5.6	7	0	9	2.8	72	147	45	28	16	6	Y	0.4	30	20.6	N	5	3	3	5	22	7.9			
INDIANA BURLINGTON	211			13.9	3.3	8.7	-2.1	24.4	20	-7.8	6	0	8	2.2	66	100	4	39	10	4	0	0	0.4	32	13.0	33	5	4	10	16	7.2	50		
DES MOINES	286	981.0	1016.2	13.5	3.1	8.3	-1.4	22.8	23	-7.2	6	0	8	2.2	70	82	7	20	13	4	203	127	0.6	3	15.2	NW	5	4	13	13	6.7			
CINCINNATI	322	974.0	1016.2	11.6	1.3	6.3	-2.1	21.7	28	-10.6	6	0	12	1.7	68	60	-45	14	13	2	104	102	0.4	9	18.3	NW	5	4	13	13	6.6	56		
WATERLOO	265	986.1	1017.3	12.2	1.6	6.9	-1.7	22.2	22	-9.4	6	0	14	1.1	70	111	24	73	11	4	119	102	0.3	6	19.2	N	11	6	8	16	6.8			
KANSAS DUNCAN	448	961.4	1014.6	17.4	3.8	10.7	-0.8	28.3	16	-5.6	6	0	9	3.9	66	39	-18	11	10	5	64	25	1.4	13	15.6	NW	11	9	8	13	5.9	70		
DODGE CITY	787	922.1	1012.8	19.3	5.2	12.3	0.1	31.1	16	-9.6	6	0	5	4.4	66	50	1	11	9	3	97	51	1.0	17	20.3	NE	11	10	9	13	5.4	57		
GUADALUPE	1116	884.5	1011.4	18.6	2.2	10.4	1.1	28.3	19	-5.6	6	0	10	3.3	67	28	-8	19	4	3	165	76	1.4	16	15.6	N	5	11	9	13	5.3	73		
TULSA	267	983.4	1015.4	17.4	4.3	10.9	-1.6	27.8	17	-4.4	6	0	7	6.1	76	60	-32	21	4	3	128	7	0.6	10	13.6	NW	5	7	8	15	6.5	55		
WICHITA	403	966.5	1014.4	18.7	5.9	12.3	-1.4	27.8	16	-2.2	6	0	2	5.6	64	37	-38	12	7	4	117	102	1.1	15	15.2	N	25	12	10	18	5.2	65		
KENTUCKY COVINGTON	265	985.8	1017.7	15.8	5.2	10.5	-1.7	26.7	21	-4.4	6	0	3	4.4	70	124	32	33	14	4	Y	0	1.1	26	13.4	31	4	10	16	7.1				
LEXINGTON	294	981.7	1017.3	17.8	6.4	12.1	-0.8	26.7	21	-1.7	7	0	2	5.0	65	129	27	57	12	0	Y	0	0.7	23	14.8	W	11	6	7	17	6.9	41		
LOUISVILLE	145	999.3	1016.9	18.1	7.5	12.8	-0.5	27.2	21	-1.1	6	0	2	5.6	65	186	82	64	11	3	Y	0	0.7	25	15.6	W	11	6	8	16	6.9			
LOUISIANA BATON ROUGE	20	1012.9	1015.4	25.6	15.3	20.4	0.2	29.4	1	6.7	6	0	0	15.6	77	292	182	145	8	7	0	0	1.4	12	10.7	18	11	5	6	19	7.3			
LAKE CHARLES	3	1012.9	1014.1	24.8	16.0	20.4	-0.1	30.0	13	6.7	5	0	0	16.1	81	161	51	96	10	8	0	0	1.6	12	13.0	16	11	6	6	18	7.0			
NEW ORLEANS	77	1013.5	1014.5	26.4	17.1	21.7	1.4	29.4	18	7.8	6	0	0	16.1	72	124	61	10	6	0	0	1.6	14	12.5	16	11	7	5	18	7.5				
SHREVEPORT	1	1004.7	1014.9	16.5	13.3	18.9	-0.2	31.1	16	2.2	5	0	0	14.4	77	188	57	84	14	6	0	0	0.9	11	10.3	18	11	7	5	18	6.8	48		
MAINE CARIBOU	190	991.2		9.1	1.1	5.1	2.5	23.3	26	-7.8	9	0	16	0.6	74	78	17	25	16	1	378	178	0.5	32	15.6	N	4	3	3	24	8.3	41		
PORTLAND	113	1013.5	1015.9	10.2	1.1	5.7	-0.3	21.1	23	-3.9	8	0	13	0.6	74	165	80	91	18	1	74	51	0.5	32	15.6	N	4	4	6	20	7.5			
MARYLAND BALTIMORE	45	1011.2	1017.0	16.8	6.7	11.7	-0.4	25.0	25	-1.1	7	0	1	4.4	64	86	8	42	10	0	Y	0	1.2	32	14.3	NW	7	8	4	18	6.7	50		
MASSACHUSETTS BLUE HILL OBS. S.	192	1014.4	1015.7	13.1	5.4	9.3	0.1	23.9	24	-3.3	8	0	7	2.2	67	110	-18	48	15	1	81	51	0.6	35	16.1	NW	10	8	3	19	7.1	42		
BOSTON	5	977.7		11.6	2.4	7.1	-0.3	23.3	24	-4.4	8	0	13	-0.6	66	114	17	40	10	0	137	102	1.5	32	13.6	NW	10	5	6	19	7.2	49		
WORCESTER	301																																	
MICHIGAN ALPENA	210	980.9	1016.7	9.4	0.7	5.1	0.6	25.0	24	-6.7	7	0	15	-0.6	71	77	15	21	13	1	231	76	0.7	36	14.6	N	6	7	6	17	7.1	46		
DETROIT	189	992.2	1016.7	10.8	2.6	5.7	-2.2	22.1	23	-6.7	6	0	8	0.6	68	126	44	41	15	3	76	51	0.4	27	16.5	NW	5	5	5	20	7.6	37		
FLINT	235	988.7	1016.3	12.1	1.9	7.0	-0.7	22.2	23	-7.2	7	0	9	1.7	74	59	-13	10	18	1	38	1	0.6	26	18.3	NW	5	4	8	18	7.6			
GRAND RAPIDS	239	989.1	1016.8	12.3	1.6	6.9	-0.7	22.8	23	-7.8	7	0	10	1.1	71	90	40	20	16	2	46	51	0.5	27	21.9	N	5	5	4	21	7.9	43		
AUBURN LAKE	350	993.9	1016.9	9.9	-1.1	4.4	-1.1	22.2	23	-13.9	7	0	17	-2.2	74	81	21	21	15	2	295	102	0.5	33	16.1	30	4	6	4	20	7.3			
LANSING	231	984.4	1016.6	11.8	2.1	6.9	-1.1	23.9	23	-7.2	5	0	12	2.2	75	68	-5	12	16	2	38	25	0.5	27	19.7	N	4	5	6	19	7.8	44		
WARREN	431	993.6	1015.9	7.3	-4.7	1.3	-1.4	21.1	24	-20.6	7	0	20	0.6	73	74	-28	17	12	0	300	711	0.8	30	17.9	NW	6	4	7	19	7.5	55		
WASHTENAW SHELBY CO. MARIE	220	990.2	1017.2	7.4	-1.9	2.8	-0.7	23.3	24	-11.7	7	0	19	-1.7	74	96	40	32	9	2	488	483	0.7	35	21.0	NW	6	7	7	16	6.7	51		
MINNESOTA DULUTH	435	986.8	1017.5	6.1	-3.3	1.4	-2.3	18.6	24	-16.7	8	0	19	-4.4	67	29	-36	10	10	0	107	432	1.4	7	15.2	NW	5	5	6	19	7.5	53		
INTERNATIONAL FALLS	359	972.0	1017.3	6.4	-4.2	1.1	-2.3	20.6	19	-20.0	8	0	23	-5.6	63	69	26	40	9	1	457	457	0.5	14	13.2	N	5	5	11	14	6.7			



## METRIC UNITS

[illegible]

## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover (tenths) (sunrise to sunset)											
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2° or above	No. of days	Average dew point	Average relative humidity	Total	mm	Departure from normal	mm				Greatest in 24 hours	mm	With thunderstorms	No. of days	Snow, ice pellets	Resultant speed m/s	Resultant direction	Speed m/s	Direction	Date	
NEW YORK																																	
BINGHAMTON	485	957.0	1016.6	10.4	1.2	5.8	-1.2	23.3	25	-7.8	8	0	14	-0.6	68	80	-1	39	12	0	185	127	1.3	28	21.0	W	6	3	21	7.4	46		
BUFFALO	215	990.5	1016.5	11.4	2.2	6.8	-0.3	26.7	25	-7.2	8	0	18	1.7	75	80	0	19	16	1	271	178	1.8	24	21.9	SW	6	3	21	7.9	41		
NEW YORK	40	1013.2	1016.4	15.6	7.3	11.4	0.9	27.2	23	0.0	8	0	1	2.8	61	105	19	28	13	0	0	0	0	1.2	34	17.9	28	6	8	14	6.1		
NEW YORK KENNEDY	4	1013.2	1016.4	15.6	7.3	11.4	0.9	27.2	23	0.0	8	0	1	2.8	61	105	19	28	13	0	0	0	0	0.8	34	17.9	28	6	8	14	6.1		
NEW YORK LA GUARDIA	3	1015.9	1017.0	13.9	6.0	10.6	-0.9	23.9	23	-0.6	8	0	2	2.8	67	90	0	23	12	1	0	0	0	1.3	34	18.3	SW	6	7	10	13	6.6	
ROCHESTER	167	986.3	1016.9	11.6	1.7	6.7	-1.2	26.1	23	-0.9	8	0	11	0.0	71	96	26	22	15	0	513	229	1.7	25	26.8	SW	6	3	9	19	7.3		
SYRACUSE	124	1001.7	1016.8	12.4	2.1	7.3	-0.8	26.1	25	-5.6	8	0	11	0.0	63	99	21	26	14	0	259	127	1.4	27	21.5	SW	6	7	21	7.3	39		
NORTH CAROLINA																																	
ASHEVILLE	652	941.1	1017.1	19.6	6.9	13.3	0.0	25.6	22	0.0	6	0	1	7.2	70	184	95	49	9	4	0	0	0	1.2	33	11.6	33	6	12	9	12	5.4	62
CAPE HATTERAS	7	1017.3	1017.6	20.1	9.8	12.9	0.0	26.6	25	0.6	20	0	0	10.6	75	68	-10	42	5	3	0	0	0	0.8	23	15.6	23	6	17	8	15	6.3	48
CHARLOTTE	224	989.5	1016.8	22.0	9.3	15.7	-0.3	27.2	22	-2.2	7	0	0	8.3	66	164	78	70	9	2	0	0	0	0.5	26	13.0	10	6	10	6	14	5.9	69
GREENSBORO	273	985.1	1016.9	21.8	8.3	15.1	0.3	28.9	22	-0.0	7	0	1	7.2	65	183	2	36	8	1	0	0	0	0.7	28	14.8	10	7	13	5.9	64		
RALEIGH	132	1001.0	1017.0	22.2	8.6	15.4	0.1	28.3	23	-1.1	17	0	0	8.9	69	67	-11	35	5	1	0	0	0	0.6	27	11.2	20	6	19	8	13	5.7	50
WILMINGTON	9	1014.3	1017.5	24.9	12.4	18.7	1.3	29.4	1	-5.6	7	0	0	12.2	69	142	68	72	6	2	0	0	0	1.1	20	15.2	5	9	10	5	13	5.7	55
NORTH DAKOTA																																	
BISMARCK	502	955.3	1016.5	6.8	-3.4	1.7	-4.4	22.2	18	-18.3	2	0	22	-2.8	77	24	-13	72	6	2	185	76	1.3	2	20.1	SE	18	1	10	19	8.1	45	
FARGO	273	982.7	1014.4	6.6	-2.2	2.2	-3.5	17.8	24	-17.8	6	0	17	-1.7	74	77	24	38	14	1	69	102	0.2	35	19.2	NW	5	1	25	9.0	45		
MILLISTON	579	945.8	1015.9	6.6	-3.8	1.4	-4.3	24.4	18	-18.3	5	0	26	-2.8	77	43	11	16	13	1	257	203	1.4	36	15.2	NW	4	4	7	19	7.7	57	
OHIO																																	
AKRON	368	972.2	1017.1	13.6	2.6	8.1	-1.1	25.6	25	-6.1	7	0	10	1.1	66	91	7	26	15	3	41	51	1.1	26	13.4	27	6	4	5	21	7.7		
CINCINNATI	297	987.5	1017.2	16.1	5.9	11.0	-0.8	28.3	21	-4.4	6	0	3	2.2	70	116	-10	32	15	3	10	0	1.2	27	17.9	26	6	4	5	21	7.3	52	
CLEVELAND	237	987.5	1017.2	13.4	2.8	8.1	-0.9	27.2	25	-5.0	6	0	9	2.2	70	178	-10	32	15	3	10	0	1.2	27	17.9	26	6	4	5	21	7.3	34	
COLUMBUS	247	987.1	1017.4	15.4	4.6	10.1	-0.6	26.1	25	-5.6	7	0	6	3.9	68	102	19	31	15	2	8	0	1.4	26	18.2	13	2	11	17	7.7	29		
DAYTON	303	988.4	1016.9	15.8	4.5	10.2	-0.6	26.7	21	-5.0	7	0	5	4.4	71	92	7	23	13	1	0	0	1.4	26	19.2	13	3	7	20	7.9	40		
MAHSAFIELD	395	991.5	1017.3	13.3	2.5	7.9	-2.1	25.0	25	-7.8	6	0	11	2.2	70	143	58	59	16	2	182	25	0.9	29	20.1	NW	5	6	7	19	7.6	44	
TOLEDO	204	991.5	1017.3	12.9	2.1	7.5	-1.6	23.3	23	-8.9	7	0	11	2.2	73	102	27	33	18	2	102	25	0.9	29	20.1	NW	5	6	7	19	7.6		
YOUNGSTOWN	356	973.9	1017.2	13.4	2.7	7.8	-0.9	27.2	25	-5.6	6	0	12	2.2	72	102	6	28	17	2	0	0	0.8	27	17.4	27	6	3	6	21	7.9		
OKLAHOMA																																	
OKLAHOMA CITY	392	967.8	1013.9	20.6	8.3	14.5	-1.3	28.9	16	1.1	4	0	0	8.3	69	71	-18	36	8	4	0	0	1.2	12	16.5	SW	11	10	8	12	5.9	68	
TULSA	198	991.2	1014.2	22.2	10.0	16.1	0.1	31.1	25	3.3	6	0	0	8.9	66	114	-8	40	8	3	0	0	1.1	17	16.1	23	11	9	12	9	5.5	53	
OREGON																																	
ASTORIA	2	1017.3	1019.0	13.6	5.5	9.6	0.8	20.6	26	-2.2	10	0	0	6.7	87	111	-6	18	19	0	0	0	1.3	24	14.3	19	17	2	5	23	8.2		
BURNS	1265	1004.4	1019.1	15.6	-0.1	6.8	0.0	21.7	30	-7.8	19	0	18	5.6	75	120	61	31	8	9	0	0	1.3	23	12.1	SE	14	3	14	13	7.3		
EUGENE	109	1004.4	1019.1	15.6	-0.1	6.8	0.0	21.7	30	-7.8	19	0	18	5.6	75	120	61	31	8	9	0	0	1.3	23	12.1	SE	14	3	14	13	7.3		
HELENA	394	999.5	1017.5	16.7	4.6	10.6	-0.5	23.9	25	-1.1	3	0	1	4.4	71	57	31	17	14	3	0	0	1.3	21	9.4	29	6	2	7	21	8.3		
PORTLAND	452	991.7	1018.7	15.7	4.7	10.2	-0.3	23.3	29	-1.1	20	0	0	2.8	63	30	4	14	1	0	0	0	2.9	26	15.6	2	8	2	7	20	7.9		
PORTLAND	60	1014.3	1017.7	16.6	6.0	11.7	1.4	28.3	26	-3.3	7	0	0	7.2	78	63	4	12	18	1	0	0	0.9	24	19.7	5	12	2	5	23	8.5	55	
SALEEM	60	1014.3	1017.7	16.0	4.5	10.3	0.4	25.6	26	-0.0	19	0	1	6.1	77	72	13	12	19	1	0	0	1.2	21	10.3	19	12	1	5	24	8.5		
SEASIDE	1169	983.5	1017.1	10.4	1.7	6.1	0.1	17.8	25	-3.3	18	0	11	2.2	72	102	6	28	17	2	0	0	0.8	27	17.4	27	6	3	6	21	7.9		
PACIFIC AREA																																	
GUAYMAS	110	1013.2	1014.4	29.5	22.6	26.1	-0.1	30.6	23	20.6	7	0	0	20.6	76	48	34	10	20	0	0	0	0.8	10.7	10.7	SE	14	0	14	16	7.4	52	
JACKSON	27	1008.6	1014.4	30.7	24.1	27.5	-0.2	32.7	24	21.6	13	0	0	20.6	76	27	48	17	20	0	0	0	0.8	10.7	10.7	SE	14	0	14	16	7.4		
LOS ANGELES	29	1008.6	1014.4	30.7	24.1	27.5	-0.2	32.7	24	21.6	13	0	0	20.6	76	27	48	17	20	0	0	0	0.8	10.7	10.7								



## CLIMATOLOGICAL DATA

METRIC UNITS

APRIL 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)										
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	With thunderstorms	No. of days				Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	
		mb	mb	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	%	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	
PENNSYLVANIA																																
HARRISBURG	103	1004.7	1017.7	15.8	4.7	10.2	-1.3	26.7 25	-1.7 11+	0 3	2.2 60	91	16	26	11	0	1.1	31	15.6	29	6	8	6	16	6.6	56	6	6	16	6.6	6.6	
PHILADELPHIA	32	1015.9	1017.0	16.3	6.2	11.3	-0.3	26.1 25	-1.1 8	0 2	3.2 63	104	20	29	14	0	1.2	33	18.3	24	6	9	3	18	6.7	52	4	3	18	6.7	6.7	
PITTSBURGH	347	972.9	1017.2	15.4	4.2	9.8	-0.3	26.3 25	-5.6 7	0 5	2.2 64	81	-6	28	14	1	1.2	28	18.3	NW	4	4	7	19	7.5	31	4	7	19	7.5	7.5	
SCRANTON	283	982.4	1017.1	13.0	3.0	8.0	-1.2	25.0 24	-2.6 8	0 11	0.0 61	94	16	40	14	0	0.9	29	17.4	"	6	5	7	18	7.0	51	5	7	18	7.0	7.0	
WILLIAMSPORT	160	984.0	1017.3	14.5	3.6	9.1	-0.8	25.6 25	-5.0 8	0 6	1.7 62	69	-18	18	15	0	0.9	28			7	6	17	6.9								
RHODE ISLAND																																
BLOCK ISLAND	34	1014.2	1016.4	10.7	4.1	7.4	0.0	18.9 29+	-1.1 4	0 2	1.1 66	102	13	29	12	0	0.8	32	14.3	27	7+	5	7	18	7.3	55	5	7	18	7.3	7.3	
PROVIDENCE	16	1014.2	1016.4	13.1	3.3	8.2	-0.3	23.3 23	-2.2 4	0 7	1.1 66	130	36	50	15	0	0.8	32	14.3	27	7+	5	7	18	7.3	55	5	7	18	7.3	7.3	
SOUTH CAROLINA																																
CHARLESTON	12	1015.6	1017.7	24.7	11.8	18.3	0.2	27.8 22	4.4 7	0 0	11.7 69	97	22	59	7	2	0	1.6	21	14.3	22	4	10	5	15	5.9	79	10	5	15	5.9	5.9
CHARLESTON U	3	1015.6	1017.7	23.0	14.7	18.8	0.1	26.7 15+	10.0 10+	0 0	11.7 69	97	22	59	7	2	0	1.6	21	14.3	22	4	10	5	15	5.9	79	10	5	15	5.9	5.9
COLUMBIA	65	1008.8	1016.8	24.4	9.3	16.9	-0.9	28.9 21+	2.8 19+	0 0	8.9 65	174	85	89	8	3	0	0.6	24	12.5	30	6	9	10	11	5.7	73	9	10	11	5.7	5.7
GRANVILLE-SPOTSBURG	292	987.1	1016.5	22.4	10.2	16.3	0.2	28.3 21	3.3 7	0 0	8.3 64	258	148	87	9	2	0	0.5	33	12.1	54	8+	14	4	12	5.0	67	14	4	12	5.0	5.0
SOUTH DAKOTA																																
ABERDEEN	395	968.2	1015.3	9.7	-0.1	4.8	-1.9	22.8 18	-11.7 5	0 16	0.6 73	74	25	37	9	1	0.6	15	17.9	NW	5	0	6	24	8.4	57	0	6	24	8.4	8.4	
HURON	390	968.2	1015.3	11.5	0.1	5.8	-1.9	24.4 23+	-10.6 6	0 17	0.6 73	57	7	38	11	6	102	76	15	17.9	NW	5	1	11	18	7.7	57	1	11	18	7.7	7.7
RAPID CITY	964	907.5	1014.0	14.4	-0.7	6.9	-0.1	30.0 18	-7.8 6+	0 19	-1.1 62	8	-45	6	6	2	46	T	36	19.2	NW	12	6	17	17	7.0	51	2	13	15	7.4	7.4
SIOUX FALLS	432	964.1	1016.3	12.3	1.2	6.7	-1.1	26.7 18	-10.6 6	0 18	0.0 66	70	11	42	16	3	38	25	0.6	11	15.6		2	13	15	7.4		2	13	15	7.4	7.4
TENNESSEE																																
BRISTOL	459	963.1	1017.3	19.4	6.5	13.0	-0.5	26.7 21	-2.2 7	0 1	5.0 64	93	10	73	12	5	0	0.9	26	11.2	26	6	10	4	16	6.3		10	4	16	6.3	6.3
CHATTANOOGA	203	992.6	1017.0	21.7	9.5	15.6	-0.2	28.3 21	3.3 7	0 0	8.9 68	190	78	73	11	2	0	0.9	35	9.4	35	15+	8	5	17	6.5	57	8	5	17	6.5	6.5
KNOXVILLE	299	981.7	1016.5	21.6	9.4	15.5	-0.2	28.3 21	1.1 7	0 0	7.8 65	109	18	33	12	2	0	0.6	30	11.6	25	8	9	18	6.5	79	9	8	18	6.5	6.5	
MEMPHIS	79	1004.1	1016.4	22.3	12.2	17.2	0.2	29.4 20	5.0 7	0 0	8.9 60	291	154	92	13	5	0	0.8	11	20.6	24	11	9	4	17	6.4	65	9	4	17	6.4	6.4
NASHVILLE	180	985.3	1017.1	20.0	8.7	14.3	-1.3	27.2 11	1.1 7	0 0	7.8 69	198	94	84	16	5	0	0.1	28	10.3	16	11	11	2	6.4	53	11	2	6	6.4	6.4	
OAK RIDGE	276	985.3	1017.1	21.3	6.7	14.0	-0.7	29.4 21	-1.1 7	0 1	7.8 69	133	26	37	13	5	0	0.1	28	10.3	16	11	10	6	11	5.8	10	9	11	5.8	5.8	
TEXAS																																
ABILENE	544	950.2	1012.6	24.2	11.6	17.9	-0.6	34.6 25	-2.2 4	1 0	8.9 62	44	-19	24	8	9	0	1.9	15	19.1	SW	11+	8	9	13	5.9	69	8	9	13	5.9	5.9
AMARILLO	1098	888.6	1011.7	20.2	4.8	12.5	-1.1	30.6 24+	-5.6 4	0 5	2.8 59	33	-7	13	3	4	0	1.9	18	10.5	25	11	10	7	13	5.5	76	10	7	13	5.5	5.5
AUSTIN	182	950.9	1012.8	24.4	14.4	19.4	-0.9	30.0 25	-5.0 5	0 0	13.3 72	76	-13	33	10	5	0	1.2	9	12.5	25	11	8	9	13	5.5	76	10	7	13	5.5	5.5
BROWNSVILLE	6	1010.5	1011.2	28.7	20.3	24.5	0.7	34.4 11	11.7 5	1 0	20.0 80	99	67	55	8	6	0	0.3	13	23.2	NE	20	4	9	17	6.6	46	4	9	17	6.6	6.6
CORPUS CHRISTI	12	1010.5	1012.0	28.0	19.0	23.5	0.8	36.7 11	10.6 5	1 0	19.4 80	94	39	38	8	5	0	0.3	11	13.0	16	10	4	8	18	7.2	57	4	8	18	7.2	7.2
DALLAS - FORT WORTH	168	992.6	1013.9	23.7	12.3	18.0	-0.4	32.2 15	3.3 5	1 0	11.1 68	52	-58	36	8	6	0	0.6	14	13.4	25	11	7	9	14	6.3	55	7	9	14	6.3	6.3
DEL RIO	313	975.3	1011.0	27.3	15.1	21.2	-1.0	36.1 25	8.3 4	4 2	12.8 64	39	-1	31	6	5	0	0.3	11	13.4	25	11	7	9	14	6.3	55	7	9	14	6.3	6.3
EL PASO	1194	879.1	1009.2	27.2	7.9	17.6	-0.2	33.3 24	-2.2 4	4 2	-3.3 25	7	-1	31	6	5	0	0.3	11	13.4	25	11	7	9	14	6.3	55	7	9	14	6.3	6.3
GALVESTON	22	1009.5	1013.1	22.5	18.2	20.3	-0.3	28.3 13	12.8 5	0 0	16.1 82	125	58	55	11	7	1	0	2.0	28	13.6	24	5	1	2.0	96	24	5	1	2.0	2.0	2.0
HOUSTON INTERCON	29	1009.5	1013.1	25.8	14.9	20.4	-0.4	30.0 13+	4.4 5	0 0	16.1 82	125	58	55	11	7	1	0	2.0	28	13.6	24	5	1	2.0	96	24	5	1	2.0	2.0	2.0
LUBBOCK	992	901.5	1011.5	24.2	8.9	16.6	1.0	32.2 24	-3.3 4	1 1	3.3 50	30	2	10	8	6	0	1.6	9	10.3	33	18+	8	3	19	7.1	41	8	3	19	7.1	7.1
MIDLAND	869	913.3	1010.7	24.9	9.1	17.0	-0.9	32.2 24	1.1 4	1 0	3.3 50	30	2	10	8	6	0	1.6	9	10.3	33	18+	8	3	19	7.1	41	8	3	19	7.1	7.1
PORT ARTHUR	5	1013.2	1010.7	25.2	16.5	20.8	0.3	30.0 13	8.3 6+	0 0	16.7 79	187	80	134	9	6	0	1.3	15	24.8	24	11	13	9	8	4.6	75	13	9	8	4.6	4.6
SAN ANGELO	580	946.2	1012.1	25.2	11.8	18.6	-1.0	32.8 25	6.7 14+	1 0	8.9 60	48	6	23	7	5	0	1.2	10	13.4	15	11+	5	9	17	7.2	44	5	9	17	7.2	7.2
SAN ANTONIO	240	984.4	1012.3	25.7	16.1	20.9	0.1	30.6 25	7.8 5	0 0	14.4 7	69	71	49	10	6	0	1.9	11	24.4	29	8	5	20	7.3	46	5	20	7.3	7.3	7.3	
SAN ANTONIO	32	1008.8	1012.9	25.9	17.0	21.5	0.0	31.7 11	7.2 5	0 0	17.2 80	131	64	61	10	6	0	1.9	11	24.4	29	8	5	20	7.3	46	5	20	7.3	7.3	7.3	
WACO	153	985.3	1013.3	23.7	12.8	18.3	-1.3	31.1 8	6.1 4+	0 0	10.0 69	73	35	-67	11	10	5	1.2	13.4	28	11	8	4	18	6.6		8	4	18	6.6	6.6	
WICHITA FALLS	303	977.3	1013.7	23.6	9.8	16.7	-1.2	30.6 23	1.1 4	0 0	10.0 69	69	-11	33	10																	
UTAH																																
MILFORD	1533	863.6	10																													

## METRIC UNITS

- 11 -

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	Date	No. of days	Max 32.2 °C or above	Min. 0 °C or lower	Average dew point	Average relative humidity	Total	mm	Departure from normal	Greatest in 24 hours	No. of days	Snow, ice pellets			Resultant speed	Resultant direction	Speed	Direction	Date	
																							No. of days							
																							m	mb						mb
VIRGINIA	50	1910.5	1017.0	21.3	8.0	14.7	0.3	29.4	1	-1.1	7	0	1	8.3	71	101	30	37	9	0	0	0	0.6	32	13.0	NW	4	7	16	6.5
	350	874.9	1016.8	19.1	7.2	13.2	-0.1	25.6	12	0.0	7	0	1	5.6	64	101	30	30	13	0	0	0	1.3	30	14.3	NW	6	6	11	13
	3			16.0	7.6	11.8	-0.4	22.2	23	0.6	8	0	0			78	0	34	8	0	0	0		21.0	NW	6			6.5	
	59	1909.5	1016.8	15.9	3.6	9.8	0.8	25.0	26	0.0	10	0	2	4.4	72	56	-24	23	15	1	0	0	1.7	22	12.5	26	12	2	6	22
	53	1909.1		13.4	3.5	8.4	0.8	26.1	26	-1.7	16	0	3			137	-70	34	18	0	0	0	0.7	24	10.3	SE	12	4	2	24
WASHINGTON	4			14.6	6.6	10.6	0.4	21.7	27	2.2	1	0	0			68	7	21	17	0	0	0		17.0	NW	12	4	2	24	8.2
	122	1900.0	1016.5	14.8	6.1	10.4	1.2	24.4	26	2.2	1	0	0	4.4	71	21	-12	7	10	0	0	0	1.3	20	13.0	S	12	4	7	19
	718	829.9	1014.1	13.6	1.4	7.5	-0.3	22.8	30	-6.1	1	0	13	0.6	65	18	-11	8	6	1	0	0	2.1	20	14.8	SW	13	4	3	23
	1206	877.8		5.9	-0.7	16.1	0.7	18.1	27	-4.4	7	0	20			153	-15	34	17	1	1377	22.61					4	3	23	
	289			17.1	6.6	11.8	0.3	28.1	30	1.1	1	0	0			45	9	14	11	0	0	0	1.7	28	10.3	SW	17	3	9	18
WEST INDIES	321	876.3	1014.9	17.5	2.0	9.8	0.1	25.6	29	-3.3	19	0	10	-1.1	49	4	-9	3	2	0	0	0	1.7	28	12.5	SW	17	3	9	18
	4	1914.2	1016.7	29.3	23.3	26.3	1.1	31.1	28	21.7	16	0	0	21.1	77	109	22	36	17	2	0	0	4.2	7	12.5	E	23	3	16	11
	35																													
WEST VIRGINIA	763	928.2	1014.6	16.5	5.5	11.0	0.1	24.4	21	-5.0	7	0	6	3.9	66	79	-5	24	14	1	Y	0	0.8	26	12.5	14	4	3	6	21
	284	983.1	1017.4	18.8	6.9	12.8	-0.4	27.2	25	-1.7	7	0	2			97	12	23	13	2	Y	1.0	26	13.0	23	7	3	6	19	
	594	984.2		16.2	2.9	9.6	-0.3	26.1	25	-7.2	7	0	12			86	-4	19	12	76	25	1.1	29	12.5	32	6	5	7	18	
	252	984.8	1017.0	19.1	7.2	13.1	-0.1	27.8	25	-2.2	7	0	4	4.4	59	72	-11	20	18	1	Y	0								
	187			17.1	5.7	11.4	-1.2	28.3	25	-3.3	7	0	4			57	-30	17	12	1	Y	0								
WISCONSIN	208	990.9	1017.1	10.8	-0.1	5.4	-1.2	22.8	23	-10.0	6	0	15	0.6	73	49	-19	14	12	1	127	102	0.8	2	18.3	N	5	4	6	23
	198	992.6	1017.4	13.0	2.2	7.6	-1.1	26.7	23	-9.4	6	0	10	1.1	66	45	-21	12	8	2	125	0.6	33							
	767	985.1	1016.9	11.5	0.0	5.8	-1.6	23.9	23	-11.1	6	0	16	1.7	78	62	-5	16	13	1	185	0.3	5	19.7	NW	5	3	11	16	
	205	991.5	1017.3	9.4	1.8	5.6	-1.4	22.2	25	-8.3	7	0	8	0.6	72	138	68	52	14	3	20	25	0.7	35	23.2	N	5	2	11	17
WYOMING	1427	833.7	1011.7	14.4	-1.4	6.5	0.6	23.9	17	-9.4	2	0	22	-3.9	55	21	-16	6	8	2	234	51	2.4	26	14.8	23	13	4	9	17
	1467	827.7	1010.5	14.4	-0.1	7.2	1.2	23.9	18	-6.1	4	0	16	-0.1	44	20	-20	11	8	2	102	51	2.1	21	18.8	NW	12	4	13	13
	1496	825.3	1011.6	14.3	-0.9	6.7	0.7	22.8	23	-10.0	2	0	19	-0.1	50	43	-17	28	7	0	776	279	1.1	28	14.8	S	18	6	15	9
	1208	816.7		12.1	-2.7	4.7	-1.7	25.6	17	-11.7	2	0	26	-1.7	67	33	-21	13	10	0	279	127	2.3	30	15.2	NW	12	4	9	17



## HEATING DEGREE DAYS

(Base 65°F.)

APRIL 1979

State and Station	Current season			State and Station	Current season			State and Station	Current season			State and Station	Current season		
	This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month		This month	Period July through this month	Normals July through this month
ALABAMA				ALABAMA				ALABAMA				ALABAMA			
BIRMINGHAM	72			BIRMINGHAM	481	6,405	5,484	BIRMINGHAM	492	7,347	6,261	BIRMINGHAM	283	4,244	4,208
MOBILE	155	3,421	3,770	MOBILE	448	5,479	5,148	MOBILE	463	7,142	6,030	MOBILE	152	3,357	3,454
MOBILE	8	1,602	1,604	MOBILE	673	7,382	6,587	MOBILE	533	7,732	6,741	MOBILE	167	3,515	3,431
MOBILE	19	1,991	2,261	MOBILE				MOBILE	491	7,674	6,440	MOBILE	121	3,238	3,205
ALASKA				ALASKA				ALASKA	451	6,633	5,981	ALASKA	213	3,901	3,651
ANCHORAGE	781	9,891	10,914	ANCHORAGE	225	4,333	3,794	ANCHORAGE	514	7,272	6,382	ANCHORAGE	230	4,015	3,867
ANCHORAGE	671	6,372	6,251	ANCHORAGE	580	6,847	6,212	ANCHORAGE	447	6,701	6,403	ANCHORAGE			
BARROW	1,978	17,672	17,867	BARROW	606	6,824	5,993	BARROW	574	8,229	6,954	BARROW			
BARTER ISLAND	1,897	17,145	17,706	BARTER ISLAND	521	7,271	6,191	BARTER ISLAND				BARTER ISLAND			
BETHEL	998	10,098	12,020	BETHEL	510	6,749	5,901	BETHEL				BETHEL			
BETTLES	1,280	14,191	14,933	BETTLES	658	7,588	6,577	BETTLES				BETTLES			
BIG DELTA	929	12,387	12,861	BIG DELTA	435	6,167	5,414	BIG DELTA				BIG DELTA			
COLD BAY	726	7,330	8,486	COLD BAY				COLD BAY				COLD BAY			
FAIRBANKS	1,018	13,119	13,585	FAIRBANKS				FAIRBANKS				FAIRBANKS			
GLORIANA				GLORIANA				GLORIANA				GLORIANA			
HOMER	792	8,241	9,171	HOMER	326	5,041	4,527	HOMER				HOMER			
UNALASKA	712	8,261	8,089	UNALASKA	547	6,368	5,970	UNALASKA				UNALASKA			
KING SALMON	784	8,683	10,459	KING SALMON	455	5,749	5,407	KING SALMON				KING SALMON			
KODIAK	620	6,687	7,725	KODIAK	560	6,180	6,187	KODIAK				KODIAK			
KOTzebue	1,380	12,699	14,334	KOTzebue				KOTzebue				KOTzebue			
MC GRATH	1,040	12,551	13,554	MC GRATH	515	5,826	5,961	MC GRATH				MC GRATH			
NOME	1,176	11,086	12,804	NOME	532	7,016	6,981	NOME				NOME			
ST. PAUL ISLAND	840	8,330	9,403	ST. PAUL ISLAND	546	8,038	6,731	ST. PAUL ISLAND				ST. PAUL ISLAND			
TALKEETNA	894	10,000	1,773	TALKEETNA	613	7,962	7,147	TALKEETNA				TALKEETNA			
UNALAKLET				UNALAKLET				UNALAKLET				UNALAKLET			
VALDEZ	792	8,702	9,478	VALDEZ				VALDEZ				VALDEZ			
YAKUTAT	834	8,305	8,401	YAKUTAT				YAKUTAT				YAKUTAT			
ARIZONA				ARIZONA				ARIZONA				ARIZONA			
FLAGSTAFF	772	7,082	6,641	FLAGSTAFF				FLAGSTAFF				FLAGSTAFF			
PHOENIX	70	1,436	1,557	PHOENIX				PHOENIX				PHOENIX			
TUCSON	76	1,856	1,752	TUCSON				TUCSON				TUCSON			
WILSON	314	4,785	4,595	WILSON				WILSON				WILSON			
YUMA	1	1,148	1,004	YUMA				YUMA				YUMA			
ARKANSAS				ARKANSAS				ARKANSAS				ARKANSAS			
FORT SMITH	175	3,915	3,312	FORT SMITH				FORT SMITH				FORT SMITH			
LITTLE ROCK	110	3,345	3,333	LITTLE ROCK				LITTLE ROCK				LITTLE ROCK			
NEW LITTLE ROCK	149	3,618	3,769	NEW LITTLE ROCK				NEW LITTLE ROCK				NEW LITTLE ROCK			
CALIFORNIA				CALIFORNIA				CALIFORNIA				CALIFORNIA			
BAKERSFIELD	87	1,883	2,157	BAKERSFIELD				BAKERSFIELD				BAKERSFIELD			
BISHOP	291	4,285	4,130	BISHOP				BISHOP				BISHOP			
BLUE CANYON	671	5,358	5,062	BLUE CANYON				BLUE CANYON				BLUE CANYON			
EUREKA	412	4,107	3,907	EUREKA				EUREKA				EUREKA			
FRESNO	76	2,351	2,530	FRESNO				FRESNO				FRESNO			
LONG BEACH	41	1,411	1,512	LONG BEACH				LONG BEACH				LONG BEACH			
LOS ANGELES	137	1,496	1,434	LOS ANGELES				LOS ANGELES				LOS ANGELES			
LOS ANGELES U	40	1,511	1,160	LOS ANGELES U				LOS ANGELES U				LOS ANGELES U			
MT SHASTA R	673	5,926	5,341	MT SHASTA R				MT SHASTA R				MT SHASTA R			
OKLAND	244	2,545	2,602	OKLAND				OKLAND				OKLAND			
RED BLUFF	172	2,365	2,414	RED BLUFF				RED BLUFF				RED BLUFF			
SACRAMENTO	236	2,827	2,703	SACRAMENTO				SACRAMENTO				SACRAMENTO			
SANDRIDGE R	487			SANDRIDGE R				SANDRIDGE R				SANDRIDGE R			
SAN DIEGO	45	1,060	1,374	SAN DIEGO				SAN DIEGO				SAN DIEGO			
SAN FRANCISCO	277	2,841	2,712	SAN FRANCISCO				SAN FRANCISCO				SAN FRANCISCO			
SAN FRANCISCO U	240	2,547	2,629	SAN FRANCISCO U				SAN FRANCISCO U				SAN FRANCISCO U			
SANTA MARIA	376	2,916	2,641	SANTA MARIA				SANTA MARIA				SANTA MARIA			
STOCKTON	126	2,524	2,724	STOCKTON				STOCKTON				STOCKTON			
COLORADO				COLORADO				COLORADO				COLORADO			
ALAMOSA	704	8,915	7,994	ALAMOSA				ALAMOSA				ALAMOSA			
COLORADO SPRINGS	494	5,452	6,009	COLORADO SPRINGS				COLORADO SPRINGS				COLORADO SPRINGS			
DENVER	473	6,066	5,683	DENVER				DENVER				DENVER			
GRAND JUNCTION	377	6,417	5,452	GRAND JUNCTION				GRAND JUNCTION				GRAND JUNCTION			
PUEBLO	391	5,877	5,210	PUEBLO				PUEBLO				PUEBLO			
CONNECTICUT				CONNECTICUT				CONNECTICUT				CONNECTICUT			
BRIDGEPORT	440	5,122	5,212	BRIDGEPORT				BRIDGEPORT				BRIDGEPORT			
HARTFORD	473	6,311	6,100	HARTFORD				HARTFORD				HARTFORD			
DELAWARE				DELAWARE				DELAWARE				DELAWARE			
WILMINGTON	474	5,062	4,812	WILMINGTON				WILMINGTON				WILMINGTON			
DIST. OF COLUMBIA				DIST. OF COLUMBIA				DIST. OF COLUMBIA				DIST. OF COLUMBIA			
WASHINGTON DULLES	383	4,934	4,474	WASHINGTON DULLES				WASHINGTON DULLES				WASHINGTON DULLES			
WASHINGTON NATIONAL	273	3,885	4,139	WASHINGTON NATIONAL				WASHINGTON NATIONAL				WASHINGTON NATIONAL			
FLORIDA				FLORIDA				FLORIDA				FLORIDA			
APALACHICOLA J	13	1,487	1,361	APALACHICOLA J				APALACHICOLA J				APALACHICOLA J			
DAYTONA BEACH	5	682	897	DAYTONA BEACH				DAYTONA BEACH				DAYTONA BEACH			
FORT MYERS	0	254	457	FORT MYERS				FORT MYERS				FORT MYERS			
JACKSONVILLE	13	1,507	1,327	JACKSONVILLE				JACKSONVILLE				JACKSONVILLE			
KEY WEST	0	39	64	KEY WEST				KEY WEST				KEY WEST			
MIAMI	0	180	204	MIAMI				MIAMI				MIAMI			
ORLANDO	0	571	733	ORLANDO				ORLANDO				ORLANDO			
PENSACOLA	6	1,518	1,578	PENSACOLA				PENSACOLA				PENSACOLA			
TALLAHASSEE	28	1,731	1,563	TALLAHASSEE				TALLAHASSEE				TALLAHASSEE			
TAMPA	0	345	718	TAMPA				TAMPA				TAMPA			
WEST PALM BEACH	0	297	299	WEST PALM BEACH				WEST PALM BEACH				WEST PALM BEACH			
GEORGIA				GEORGIA				GEORGIA				GEORGIA			
ATLANTA	92	2,752	2,955	ATLANTA				ATLANTA				ATLANTA			
AUGUSTA	97	2,761	3,064	AUGUSTA				AUGUSTA				AUGUSTA			
COLUMBUS	74	2,102	2,377	COLUMBUS				COLUMBUS				COLUMBUS			
MADISON	62	2,171	2,034	MADISON				MADISON				MADISON			
ROME	127	3,111	3,809	ROME				ROME				ROME			
SAVANNAH	17	1,724	1,959	SAVANNAH				SAVANNAH				SAVANNAH			
IDAHO				IDAHO				IDAHO				IDAHO			
BOISE	481	6,405	5,484	BOISE				BOISE				BOISE			
LEAVAN	448	5,479	5,148	LEAVAN				LEAVAN				LEAVAN			
POCAHONTO	673	7,382	6,587	POCAHONTO				POCAHONTO				POCAHONTO			
ILLINOIS				ILLINOIS				ILLINOIS				ILLINOIS			
CHICAGO	225	4,333	3,794	CHICAGO				CHICAGO				CHICAGO			
CHICAGO MIDWAY	580	6,847	6,212	CHICAGO MIDWAY				CHICAGO MIDWAY				CHICAGO MIDWAY			
MULTIPLY	521	7,271	6,191	MULTIPLY				MULTIPLY				MULTIPLY			
PERKINS	510	6,749	5,901	PERKINS				PERKINS				PERKINS			
ROCKFORD	658	7,588	6,577	ROCKFORD				ROCKFORD				ROCKFORD			
SPRINGFIELD	435	6,167	5,414	SPRINGFIELD				SPRINGFIELD				SPRINGFIELD			
INDIANA				INDIANA				INDIANA				INDIANA			
EVANSVILLE	326	5,041	4,527	EVANSVILLE				EVANSVILLE				EVANSVILLE			
FORT WAYNE	547	6,368	5,970	FORT WAYNE				FORT WAYNE				FORT WAYNE			
INDIANAPOLIS	455	5,749	5,407	INDIANAPOLIS				INDIANAPOLIS				INDIANAPOLIS			
SOUTH BEND	560	6,180	6,187	SOUTH BEND				SOUTH BEND				SOUTH BEND			
IOWA				IOWA				IOWA				IOWA			
AMERICAN LAKE	515	5,826	5,961	AMERICAN LAKE				AMERICAN LAKE				AMERICAN LAKE			
DES MOINES	532	7,158	6,499	DES MOINES				DES MOINES				DES MOINES			
MUSKOGEE	632	7,016	6,981	MUSKOGEE				MUSKOGEE				MUSKOGEE			
SIOUX CITY	546	8,038	6,731	SIOUX CITY				SIOUX CITY				SIOUX CITY			
WATERLOO	613	7,962	7,147	WATERLOO				WATERLOO				WATERLOO			
KANSAS				KANSAS				KANSAS				KANSAS			
CUMBERLAND	411	6,220	5,449	CUMBERLAND				CUMBERLAND				CUMBERLAND			
DOUGLAS	343	5,512	4,910	DOUGLAS											

(1948, 1950, 1951).

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# STORM SUMMARY

APRIL 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				o ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE	
								PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS
Alaska	2	2								4	h	4		1	5	3										7	3	7	5
Arizona	*	4		55			4			h	6																2	6	
Arkansas																													
California	*																												
Colorado																													
Connecticut																													
Florida	2	1			5		05	C		1	05	C														6	7	7	7
Georgia		4		11	6						h															6	6		
Hawaii																													
Idaho	1	1			1					1	h	7														1	2	2	2
Illinois			1							1	h	3															3	3	3
Iowa	1	1								1	h																5	5	
Kansas		3		3	5		4	5			5				5														
Kentucky	1	1		h	h						h															4	42	7	6
Louisiana	3	3			6					10	h			1	7														
Maine																													
Maryland											h	h																	
Massachusetts										2	4																		
Michigan	2	1		6	5					1	10															7			
Minnesota											5																		
Mississippi	1	1			h					1	h															4	9	9	9
Missouri	1	1		20	h						h	5			3	1										3	5	5	5
Montana																													
Nebraska	3	3			5		h	h			5				4														
Nevada																													
New Hampshire																													
New Jersey																													
New Mexico	1	1			h						h	h																	
New York	1	1		2	h						h	h																	
North Carolina	4	1		3	h		4					5		2													6	6	6
North Dakota										2	1	5															h	h	h
Ohio																													
Oklahoma	17	1	3	112	h		5				6	5			4	8													
Oregon																													
Pennsylvania											h	h																	
Puerto Rico	1	1			4																								
Rhode Island																													
South Carolina	1	1			h						4	2																5	5
South Dakota																													
Tennessee	1	1			4						4	5		1	4											1	5	5	5
Texas	31	7	53	1814	h		3	h	h		16	h	5		19	7										2	9	9	9
Utah																													
Vermont																													
Virgin Islands											1	4	3																
Washington																													
West Virginia																													
Wisconsin																													
Wyoming																													

## Average monthly values

APR 11 1970



# RAWINSONDE DATA

Average monthly values

APRIL 1979

CHATHAM, MA 1014 MB										COLD BAY, AK 1007 MB									
Standard pressure Sea level, mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction true, deg	Speed m/s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction true, deg	Speed m/s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction true, deg	Speed m/s	No. of observations
1000	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
950	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
900	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
850	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
800	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
750	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
700	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
650	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
600	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
550	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
500	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
450	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
400	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
350	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
300	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
250	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
200	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
150	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
100	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
50	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1
0	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1	1.1	-1.1	-3.1	167	1.7	1

Average monthly values

APRIL 1979

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# RAWINSONDE DATA

Average monthly values

APRIL 1979

KINGMAN, AZ 1015 MS										LAKE CHARLES, LA 1013 MS										LANFORD, WY RPA MS									
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m ps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m ps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m ps	Resultant Wind	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m ps	Resultant Wind	
1000	15	1.8	-2.2	1.7	3	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	5.16	15.6	10	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
950	11	2.8	-3.1	1.4	7	4.2	27.4	24	1.9	1.4	-7.7	-13.2	10	6.4	10	117	17.9	11.9	12	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2		
900	11	3.8	-4.1	0.4	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	556	17.4	9.1	15	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2		
850	11	4.8	-5.1	-0.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	1017	17.4	6.1	18	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6		
800	11	5.8	-6.1	-1.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2008	10.3	-9.9	23	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1		
750	11	6.8	-7.1	-2.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.643	7.9	-8.6	25	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
700	11	7.8	-8.1	-3.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	7.105	6.6	-9.6	26	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8		
650	11	8.8	-9.1	-4.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	1.705	1.1	-11.1	26	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5		
600	11	9.8	-10.1	-5.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.448	-7.8	-14.1	26	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		
550	11	10.8	-11.1	-6.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.657	-10.2	-17.1	26	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2		
500	11	11.8	-12.1	-7.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	3.476	-12.9	-20.7	26	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2		
450	11	12.8	-13.1	-8.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	4.661	-18.4	-34.4	26	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7		
400	11	13.8	-14.1	-9.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	7.429	-24.9	-43.8	26	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4		
350	11	14.8	-15.1	-10.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	1.169	-31.9	-50.5	26	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7		
300	11	15.8	-16.1	-11.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.657	-40.2	-60.5	26	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1		
250	11	16.8	-17.1	-12.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	10.676	-48.6	-78.6	26	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1		
200	11	17.8	-18.1	-13.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	12.106	-56.6	-86.6	26	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1		
150	11	18.8	-19.1	-14.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	12.939	-64.1	-94.1	26	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1		
100	11	19.8	-20.1	-15.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	14.822	-72.7	-102.7	26	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1		
50	11	20.8	-21.1	-16.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	15.011	-80.7	-110.7	26	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1		
0	11	21.8	-22.1	-17.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	16.076	-88.6	-118.6	26	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1		
1000	15	1.8	-2.2	1.7	3	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	5.16	15.6	10	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6		
950	11	2.8	-3.1	1.4	7	4.2	27.4	24	1.9	1.4	-7.7	-13.2	10	6.4	10	117	17.9	11.9	12	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2		
900	11	3.8	-4.1	0.4	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	556	17.4	9.1	15	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2		
850	11	4.8	-5.1	-0.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	1017	17.4	6.1	18	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6		
800	11	5.8	-6.1	-1.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2008	10.3	-9.9	23	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1		
750	11	6.8	-7.1	-2.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.643	7.9	-8.6	25	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9		
700	11	7.8	-8.1	-3.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	7.105	6.6	-9.6	26	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8		
650	11	8.8	-9.1	-4.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	1.705	1.1	-11.1	26	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5		
600	11	9.8	-10.1	-5.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.448	-7.8	-14.1	26	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		
550	11	10.8	-11.1	-6.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.657	-10.2	-17.1	26	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2		
500	11	11.8	-12.1	-7.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	3.476	-12.9	-20.7	26	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2		
450	11	12.8	-13.1	-8.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	4.661	-18.4	-34.4	26	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7		
400	11	13.8	-14.1	-9.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	7.429	-24.9	-43.8	26	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4		
350	11	14.8	-15.1	-10.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	1.169	-31.9	-50.5	26	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7		
300	11	15.8	-16.1	-11.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	2.657	-40.2	-60.5	26	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1		
250	11	16.8	-17.1	-12.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	10.676	-48.6	-78.6	26	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1		
200	11	17.8	-18.1	-13.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	12.106	-56.6	-86.6	26	28.1	28.1	28.1	28.1	28.1	28.1	28.1	28.1		
150	11	18.8	-19.1	-14.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	12.939	-64.1	-94.1	26	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1		
100	11	19.8	-20.1	-15.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	14.822	-72.7	-102.7	26	32.1	32.1	32.1	32.1	32.1	32.1	32.1	32.1		
50	11	20.8	-21.1	-16.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	15.011	-80.7	-110.7	26	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1		
0	11	21.8	-22.1	-17.6	7	7.2	24.8	32	2.8	1.4	-9.3	-12.1	17	6.4	10	16.076	-88.6	-118.6	26	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1		

## Average monthly values

1961 1974



# RAWINSONDE DATA

Average monthly values

APRIL 1979

SAINT LOUIS, MO 1011 MB										SAINT LOUIS, MO 905 MB										SAN PIERO, CA 1000 MB										SAN JUAN, P. R. 1016 MB										SAULT STE MARIE, MI 901 MB									
Standard pressure surface mb.		Dynamic height meters		Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations		Dynamic height meters		Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations		Dynamic height meters		Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations		Dynamic height meters		Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.h.	No. of observations		Dynamic height meters		Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.h.										
1000	6.1	6.8	5.0	17	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
1000	147	8.1	5.8	17	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
850	570	8.1	3.8	17	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
800	1,012	3.5	1.8	24	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
800	1,475	-1.0	-2.2	24	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
750	1,941	-1.4	-5.2	27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
700	2,471	-4.4	-10.0	27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
650	3,014	-7.3	-14.1	27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
600	3,588	-11.6	-19.1	28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
550	4,200	-13.4	-24.4	28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
500	4,856	-18.4	-28.8	28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
450	5,561	-24.4	-33.5	28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
400	6,328	-28.4	-36.0	28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
350	7,160	-34.4	-43.4	29	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
300	8,083	-41.4	-47.6	29	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
250	9,110	-49.0		28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2								
200	10,289	-54.8		27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2								
150	11,705	-57.4		27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2								
100	12,550	-57.0		27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2								
50	13,527	-56.7		28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2								
0	14,484	-56.8		27	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2								
50	16,096	-57.7		28	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2																							

JOPPA, MD 970 MB										TAMPA, FL 1015 MB										TOPKAL, KS 983 MB										TRUK, CAROLINE IS. 1011 MB										TUCSON, AZ 925 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
500	30	720	2.9	-1.7	17	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1

## Average monthly values

WATCROSS, PA

WFS? FALM REACT, FL

$$u \in \mathcal{H}_1 \cap \mathcal{H}_2 \Rightarrow u \in \mathcal{H}_1 \cap \mathcal{H}_2, \quad \mathcal{H}_1 \cap \mathcal{H}_2$$

WINSLOW, A?

YAMUTAT. AM

YAP, CAROLINE IS.

1079 ME

- 21 -



## SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

APRIL 1979

Sun's zenith distance									Sun's zenith distance																										
A. M.					P. M.				A. M.					P. M.																					
Date	78.7°	75.7°	70.7°	60.0°	60.0°	70.7°	75.7°	78.7°	Date	78.7°	75.7°	70.7°	60.0°	60.0°	70.7°	75.7°	78.7°																		
MAY 11 A. B. 1341.50, 11																		TUCSON, AZ																	
Air mass																		Air mass																	
	4.84	4.71	2.78	1.86	*	1.86	2.78	3.71	4.84		4.84	4.71	2.78	1.86	*	1.86	2.78	3.71	4.84																
1-----	.93	1.02	1.14	1.30	1.42	1.26	1.14	1.02	.94	1-----	.93	1.02	1.14	1.30	1.42	1.26	1.14	1.02	.94																
2-----	.76	.86	1.01	1.19	1.31	1.01	.86	.76	.78	2-----	.76	.86	1.01	1.19	1.31	1.01	.86	.76	.78																
3-----	.59	.69	.84	1.06	1.24	.84	.69	.59	.81	3-----	.59	.69	.84	1.06	1.24	.84	.69	.59	.81																
4-----	.46	.57	1.09	1.24	1.42	1.23	1.08	.46	.84	4-----	.46	.57	1.09	1.24	1.42	1.23	1.08	.46	.84																
5-----	.36	.46	1.09	1.25	1.48	1.27	.99	-----	-----	5-----	.36	.46	1.09	1.25	1.48	1.27	.99	-----	-----																
6-----	.27	.37	1.10	1.28	1.42	1.29	1.13	1.01	.91	6-----	.27	.37	1.10	1.28	1.42	1.29	1.13	1.01	.91																
7-----	.20	.28	1.11	1.26	1.46	1.25	1.09	.98	.89	7-----	.20	.28	1.11	1.26	1.46	1.25	1.09	.98	.89																
8-----	.15	.23	1.13	1.37	-----	1.05	.93	.82	-----	8-----	.15	.23	1.13	1.37	-----	1.05	.93	.82	-----																
9-----	.10	.19	1.00	1.16	1.43	1.22	-----	.89	.75	9-----	.10	.19	1.00	1.16	1.43	1.22	-----	.89	.75																
10-----	.07	.14	1.05	1.22	1.45	-----	-----	-----	-----	10-----	.07	.14	1.05	1.22	1.45	-----	-----	-----	-----																
11-----	.05	.11	1.10	1.26	1.48	1.29	1.07	.96	.88	11-----	.05	.11	1.10	1.26	1.48	1.29	1.07	.96	.88																
12-----	.04	.10	1.10	1.27	1.24	1.09	.92	.84	-----	12-----	.04	.10	1.10	1.27	1.24	1.09	.92	.84	-----																
13-----	.03	.09	1.04	1.22	1.45	1.19	1.03	.91	.82	13-----	.03	.09	1.04	1.22	1.45	1.19	1.03	.91	.82																
14-----	.02	.08	1.05	1.22	1.43	1.16	.98	.85	.73	14-----	.02	.08	1.05	1.22	1.43	1.16	.98	.85	.73																
15-----	.01	.07	1.05	1.22	1.43	1.16	.98	.85	.73	15-----	.01	.07	1.05	1.22	1.43	1.16	.98	.85	.73																
16-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	16-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
17-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	17-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
18-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	18-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
19-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	19-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
20-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	20-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
21-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	21-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
22-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	22-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
23-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	23-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
24-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	24-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
25-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	25-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
26-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	26-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
27-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	27-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
28-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	28-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
29-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	29-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
30-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73	30-----	.01	.06	1.05	1.22	1.43	1.16	.98	.85	.73																
Average	.78	.89	1.03	1.19	1.42	1.19	1.01	.88	.77	Average	.78	.89	1.03	1.19	1.42	1.19	1.01	.88	.77																

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . . .	45	107	33	4	49	34	32	26	153	113	63	112	114	111	120	129	60	89	37	116	77	34	33	122	139	36	153	123	134	105	86	

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $9 \times ^\circ\text{C} + 32$

$\frac{5}{9}$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

o Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

< No Storm Data Report received for this State.

<> Report incomplete.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

CI	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
* BD	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeterminable
BN	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN	Blowing Sand	GF	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D	Dust	H	Haze	KI	Intense Smoke		
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), April.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), April 1979

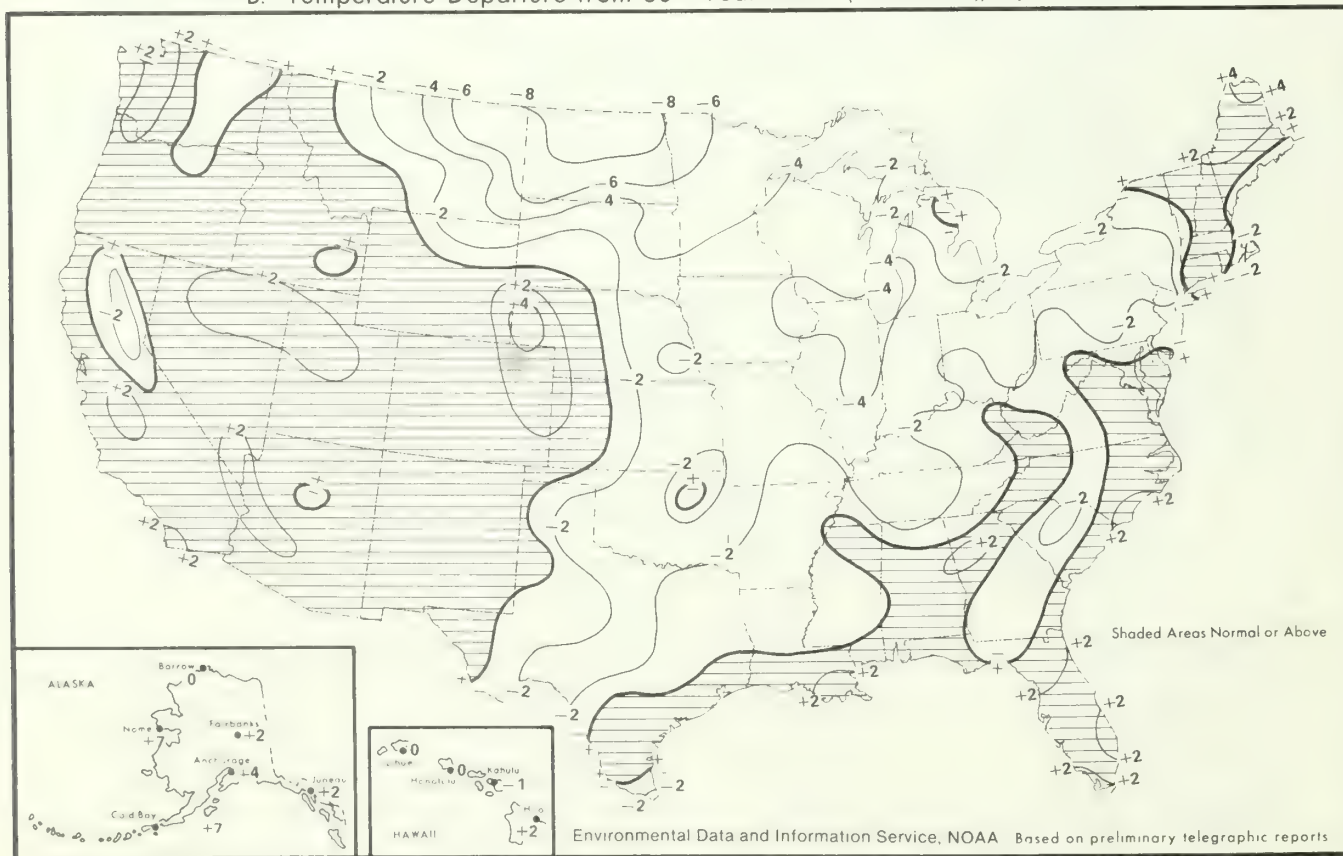
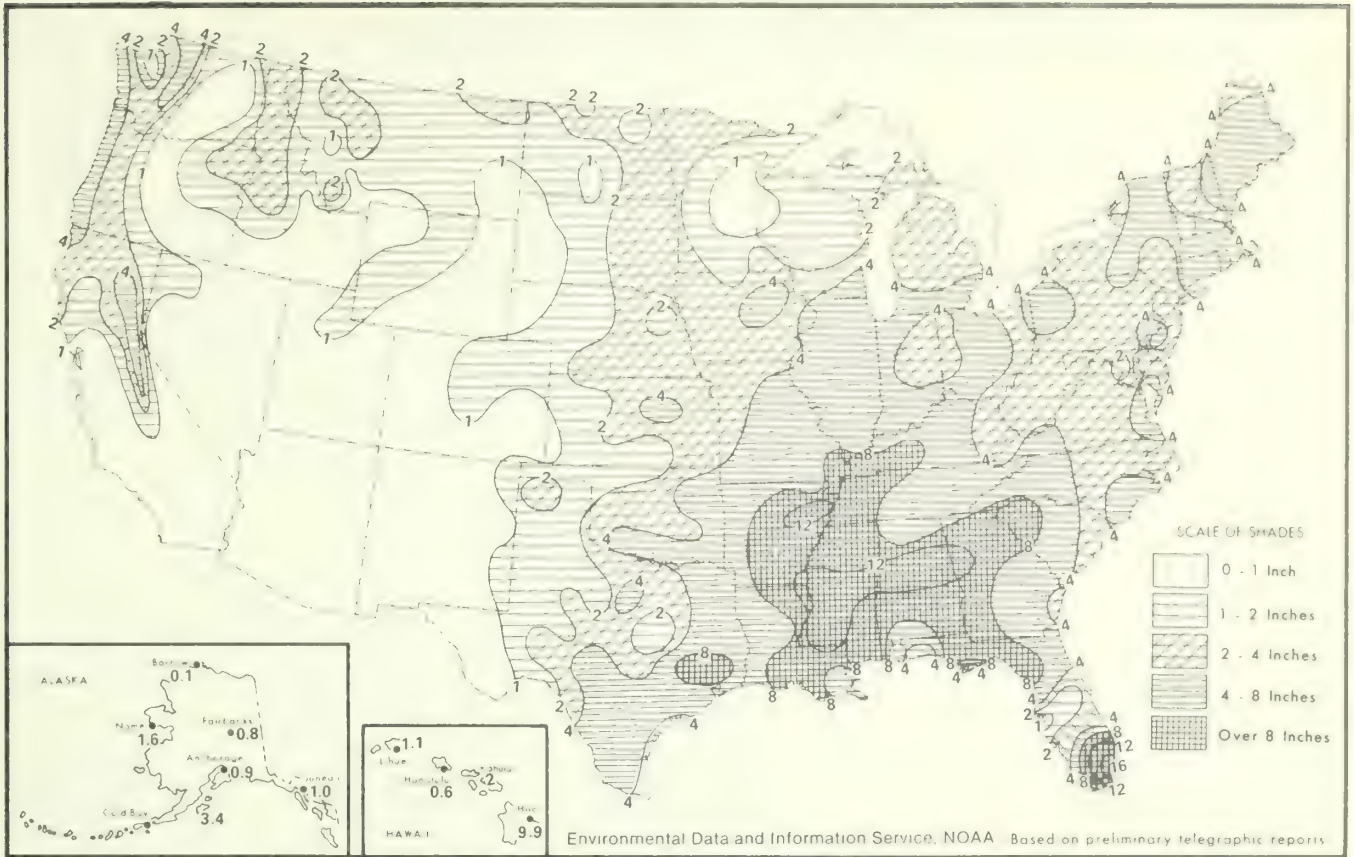


Chart II. A. Total Precipitation (Inches), April 1979



B. Percentage of Normal Precipitation, April 1979

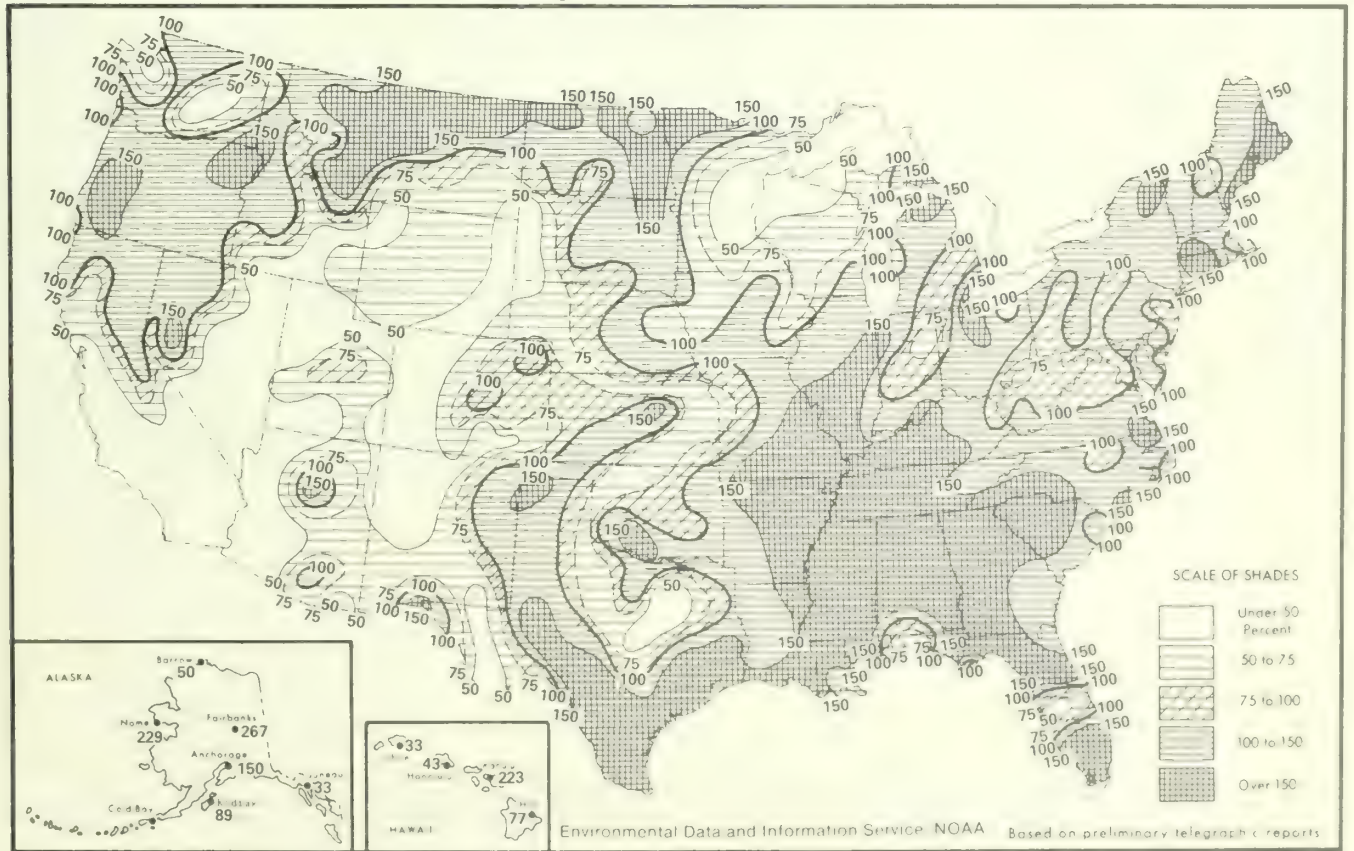
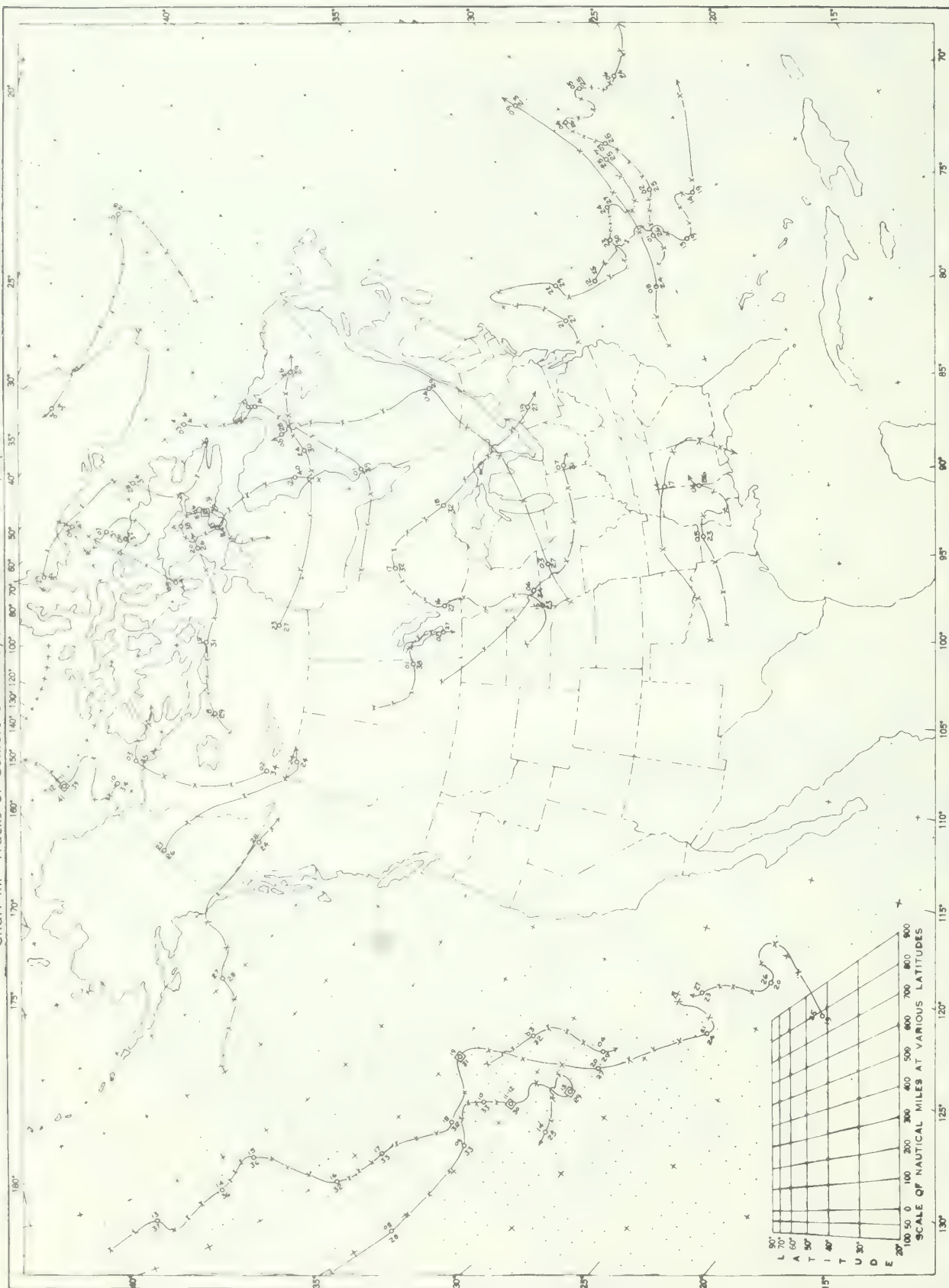


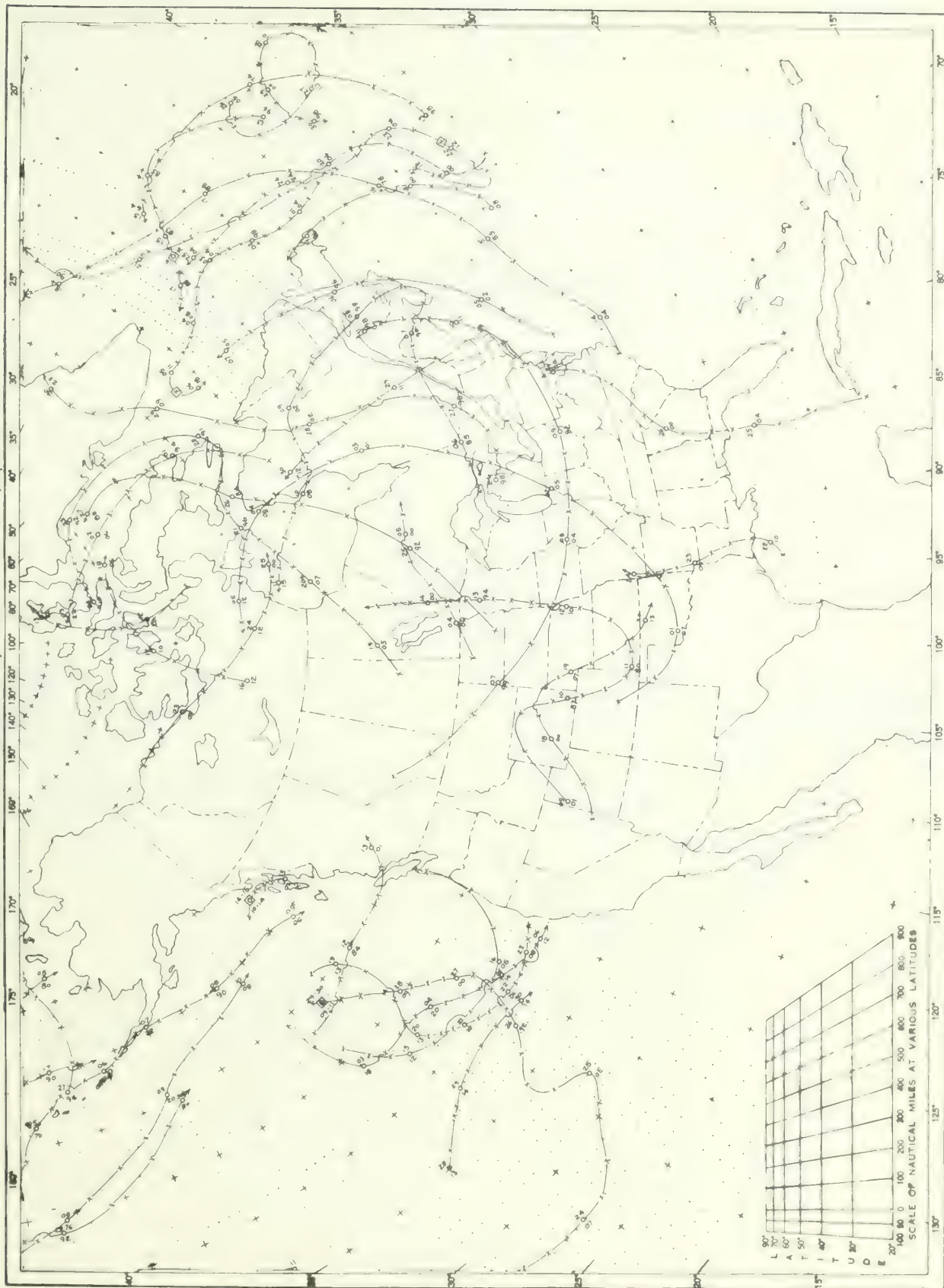


Chart III. Tracks of Centers of Anticyclones at Sea Level, April 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 'X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Tracks of Centers of Cyclones at Sea Level, April 1979



Circle indicates position of center at 0000 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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MAY 1979

VOLUME 30

NUMBER 5

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Carol B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

MAY 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Temperatures averaged close to normal in most of the Nation, but extremes, both hot and cold, were common. The West, from the Plateau to the Coast, averaged 4 to 5° warmer than normal. Freezing temperatures reached as far south as Kansas, and many record high temperatures were marked in the East.

Nearly all of the Nation received some rain, and numerous thunderstorms formed. Record amounts of rain accumulated in many areas. Rainfall was frequent in most of the agricultural areas where farmers were trying to plant spring crops.

Three distinct rain patterns moved from the Rockies eastward during the first week of May. The first storm system moved from the central Plains through the Great Lakes. Moderate showers and thunderstorms accompanied the path of the storm with lesser amounts to the south. The succeeding storms brought the heaviest activity further to the south. Nearly all areas east of the Rockies had rain on at least 3 of the 6 days. At the end of the week, a storm moved into the Pacific Northwest and brought moderate rain to the coastal areas and snow to the mountains. Freezing temperatures dipped into the mountains and moved to the northern Plains.

In the week of the 7th-13th, a mass of much cooler air pushed into the Plateau and Rockies and moved slowly eastward during the week. Warm, moist air edged into the Nation from the south ahead of the cooler air. Rain or snow showers accompanied the influx of cool air in the West, while heavier showers,

thunderstorms, and tornadoes were plentiful east of the Rockies. The most severe weather hit the Nation's Southeast where some rains exceeded 10 inches. Freezing temperatures dipped into the Plains as far south as Kansas, while record high temperatures were being recorded east of the cold air.

A new weather system originated in Alberta, Canada, and moved eastward through the Canadian Provinces in the third week of May (14th-20th). A line of showers and thunderstorms extended southwestward from the center. Heavy amounts of rain soaked parts of the Texas-Oklahoma border, northern Arkansas, and southern Missouri. Late in the week, an upper air system caused moderate showers in the Southwest. Temperatures ranged warmer than normal through most of the Nation. Only the northern Plains, the South, and the Southeast recorded slightly cooler than normal readings.

The slow-moving system extending from the low pressure in southern Canada moved through the United States early in the week of the 21st-27th, and the upper air disturbance moved from the Southwest causing a surface low pressure to form in Texas. Heavy rains accompanied the storm, and it became more intense as it moved northeastward. More than 5 inches of rain soaked Texas and Arkansas, and 2- to 4-inch amounts extended from the southern Appalachians through the New England coastal areas. The severe storm lingered in the New England area, and the rain persisted until the end of the month.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

MAY 1979

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least
		°F			°F			In.		In.
Alabama	Brewton 3 SSE	107	20	Valley Head	-4	26	Vernon 2 N	8.69	Wetumpka	1.24
Alaska	2 Stations	28+		Allakaket	-4	9	Little Port Walter	14.77	3 Stations	T
Arizona	2 Stations	107	14+	Hawley Lake	7	10	Hawley Lake	4.90	Stephens Ranch	.10
Arkansas	Mountain Home C of Eng	95	21	Mountain Home C of Eng	13	5	Madison 1 NW	14.64	Texarkana FAA AP	4.01
California	Death Valley	110	26	White Mountain 2	0	8	Fort Dick	7.69	55 Stations	.00
Colorado	2 Stations	92	30+	Wolf Creek Pass 1 E	1	11	Wolf Creek Pass 1 E	7.21	Creede	.38
Connecticut	Hartford WSO AP	97	9	Coventry	29	2	Meriden Pub-Util Plant	6.91	Hartford WSO AP	3.48
Delaware	2 Stations	88	11+	Wilmington 5 SW	15	2	Lewes 1 SW	5.75	Middletown 1 WSW	3.03
District of Columbia	Myakka River State Park	98	14	4 Stations	40	26	Tampa WSO AP	17.64	Venice	1.43
Florida	Lumpkin 2 SE	94	11	3 Stations	42	26	Clayton 1 SSW	12.17	West Point	.67
Georgia	Puukohola Heiau 98.1	98	1	Mountain View 111	12	17	Kalaoa 69.22	17.88	12 Stations	.00
Hawaii	Swan Falls Power House	98	1	Swan Valley	13	6	Pierce	5.75	Aberdeen Exp Station	.09
Idaho	2 Stations	91	8	2 Stations	28	2+	Brookport Dam 52	6.18	Jacksonville 2 E	.90
Indiana	2 Stations	91	11	2 Stations	25	5+	Elliston	6.59	Warsaw	.99
Iowa	Albia 3 W	94	29	Winterset 2 NNE	26	1	Ocheyedan	7.42	Blockton 2 S	1.02
Kansas	2 Stations	95	14+	Libhart 6 SNE	21	4	Webster Dam	8.43	Ionia	.82
Kentucky	2 Stations	92	10+	Owenton	40	5	Murray	9.86	Shelbyville 6 NW	2.30
Louisiana	Franklinton 3 SW	94	14	2 Stations	81	26	Oberlin Fire Tower	11.30	Belah Fire Tower	2.16
Maine	2 Stations	96	9	2 Stations	21	7+	Machias	10.61	Van Buren 2	3.36
Marshall Islands	2 Stations	95	9	Oakland 1 SE	26	2	Patuxent River	6.38	Upper Marlboro 3 NNW	2.49
Massachusetts	Chester 2	100	10	Great Barrington AP	28	2	Chester 2	8.80	Nantucket FAA AP	2.65
Michigan	Monroe	92	12	Champion Van Riper Park	16	1	Vanderbilt 11 ENE	4.95	2 Stations	.88
Minnesota	Olivia	93	29	4 Stations	21	19+	Two Harbors	7.37	2 Stations	1.04
Mississippi	Wiggins 3 SSE	95	11+	Tupelo 2 WNW	15	16	Hernando	11.78	Richton 3 SSE	2.21
Missouri	2 Stations	94	9	Waynesville 2 W	9	5	Oldfield	10.06	St Charles 7 SSW	.66
Montana	Poplar	95	27	Wisdor	11	7	Bozeman 12 NE	3.82	Choteau Airport	.09
Nebraska	2 Stations	96	6	2 Stations	19	11	Meadow Grove	7.38	Mitchell 5 E	1.07
Nevada	2 Stations	103	22	2 Stations	16	9+	Luna	2.01	2 Stations	.00
New Hampshire	North Conway	93	18	Mount Washington	12	6	Pinkham Notch	8.43	Monroe 5 SNE	3.25
New Jersey	2 Stations	93	11+	Newton St Pauls Abbey	30	2	Long Branch Oakhurst	9.43	Atlantic City WSO AP	2.80
New Mexico	Bitter Lakes Wildlife Refuge	98	7	2 Stations	16	11	Springer 2 NW	7.14	Hachita	.00
New York	2 Stations	96	10	2 Stations	1	2	Fishs Eddy	8.29	Massena FAA AP	1.61
North Carolina	2 Stations	93	30	Grandfather Mountain	26	26	North Fork 2	11.77	Monroe 4 SE	2.55
North Dakota	Oakes 2 S	92	29	Kenmare 1 WSW	11	4	Pennina	3.33	Wilton	.55
Ohio	Toledo Blade	92	11+	Mansfield 5 W	23	1	Bolivar Dam	7.76	Eaton	2.66
Oklahoma	2 Stations	103	15	Boise City 2 E	20	4	Fanshawe	14.67	Hulth Dam	2.15
Oregon	2 Stations	94	25+	2 Stations	15	29	Port Orford 5 E	7.50	Pine Grove	.09
Pennsylvania	Laurelton St Village	95	9	2 Stations	18	2	Washington	8.96	Austin 5 NNW	.76
Rhode Island	Magueyes Island	96	18	2 Stations	25+	2	Paraiso	38.32	Ponce City	1.80
South Carolina	Providence WSO AP	92	18	Kingston	46	3	Providence WSO AP	7.62	Block Island WSO AP	4.74
South Dakota	2 Stations	92	12	2 Stations	13	26	Hogback Mountain	12.73	Chester	1.50
Tennessee	Midland	99	16	Ralph	15	11	Vermillion 2 SE	5.49	Dupree 15 SSE	.50
Texas	Athens	92	12	Crossville Exp Station	30	26	Franklin Sewage Plant	12.60	Kingsport	3.12
Utah	Falcon Dam	107	31	Dalhart FAA AP	27	4	Martin 3 NE	18.38	Duncan Wilson Ranch	.08
Vermont	2 Stations	96	21+	Silver Lake Brighton	6	9	Hanksville	3.11	La Verkin	.02
Virgin Islands	Vernon	95	10	Mount Mansfield	29	5	Ball Mountain Lake	8.48	Bristol 5 NNW	2.98
Virginia	Lincoln	9	9	Mt Lake Biological Station	29	26+	Norfolk WSO AP	10.12	Columbia	1.97
Virgin Islands	Estate Pearl	97	9	2 Stations	66	26+	Estate Rust Op Twist	17.93	Berh Upper New Works	7.50
West Virginia	2 Stations	95	23+	Satus Pass 2 SSW	22	9	Clearwater	6.02	Wapato	T
Wisconsin	Spencer	96	12	2 Stations	21	17+	Middlebourne 2 ESE	7.45	East Rainelle 3 NNE	2.88
Wyoming	2 Stations	90	10+	Newell 3 W	17	1	Fairchild Ranger Station	8.35	Broadhead	.92
Zimbabwe	Colony	92	16	Pinedale	9	7	Anchor Dam	4.94	Farnon	.08

## CLIMATOLOGICAL DATA

METRIC UNITS

N.A. 1-7-

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind			No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower	Average dew point			Average relative humidity	Precipitation		Resultant speed	Resultant direction	Speed	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
															Total	25 mm. or more		No. of days	Snow, ice pellets																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
ALABAMA	207	994.2	1015.5	26.4	15.4	21.0	-1.2	30.6	22*	5.0	2*	0	0	0	16.7	70	120	24	6	1*	8	17	11.2	17	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0</



## CLIMATOLOGICAL DATA

METRIC UNITS

1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation				Wind				No. of days (sunrise to sunset)		°						
		Station Q	Sea level	Average		Departure from normal	Highest	Date	Lowest	No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date		Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)		
				Average maximum	Average minimum					Max 32.2 °C or above	Min. 0 °C or lower																		Average dew point	
ALABAMA	2297	1016.0	1017.9	19.3	1.4	1.4	-0.1	33.9 29+	-0.6 13	0	11	0	57	24	0	11	12	61	7	13.9	7	13.9	74	27+	2	15	14	6.7	59	
	1473	1017.7	1017.7	19.2	5.8	12.7	-0.5	27.8 6	-1.7 10	0	3	0	57	90	208	0	0	25	51	12.5	7	12.5	86	6	3	12	16	7.1	7.1	63
	1410	1017.7	1017.7	19.2	8.2	12.7	-0.5	30.4 29	0.0 11	0	4	0	51	37	177	0	0	182	18.3	11	18.3	86	6	10	8	13	5.7	5.7	61	
	1476	1017.7	1017.7	19.2	9.3	12.7	-0.5	30.6 29+	0.0 11	0	1	0	51	66	36	22	11	25	20.6	11	20.6	71	29	3	11	15	7.1	7.1	77	
CONNECTICUT	2	1015.9	1016.6	19.9	13.1	16.2	1.9	30.0 10	0.1 2	0	0	0	73	124	0	0	4	0	0	0.7	17	11.6	25	27+	7	0	16	6.7	6.7	54
	57	1009.8	1016.2	23.2	12.4	17.8	3.2	36.1 9	5.0 4	2	0	0	61	88	-1	2	12	1	0	0.4	26	13.0	86	5	5	9	17	7.1	7.1	59
	23	1013.2	1016.4	22.9	12.4	17.7	0.8	31.1 10	4.4 2	0	0	0	71	79	-4	24	15	3	0	0.4	19	9.4	20	24+	5	0	16	7.1	7.1	59
	88	1004.4	1016.1	23.7	11.1	17.4	0.4	31.1 10	1.1 2	0	0	0	75	124	31	33	17	4	0	0.7	11	10.7	35	4	7	0	18	6.7	6.7	59
DIST. OF COLUMBIA	3	1013.9	1016.2	24.6	15.0	19.8	0.6	31.7 10	0.3 2	0	0	0	73	90	-3	3	14	4	0	0.9	19	11.6	1	14+	8	4	19	6.7	6.7	59
	6	1015.6	1016.2	27.6	17.7	24.7	-1.2	30.0 19+	0.9 27+	0	0	0	61	108	38	46	7	0	0	1.3	17	9.9	14	24+	11	10	10	5.1	5.1	62
	8	1014.9	1016.5	26.6	18.8	24.2	0.3	32.8 26	1.2 27	0	0	0	75	156	88	74	9	11	0	1.5	12	15.6	25	4	9	11	11	5.1	5.1	62
	8	1015.2	1016.5	31.4	23.8	26.1	0.7	34.4 26	1.6 27	13	0	0	75	192	34	24	14	10	0	1.3	11	19.4	26	24	7	6	10	5.1	5.1	74
DELAWARE	1	1014.6	1018.7	28.3	18.7	25.8	-0.7	31.7 31+	0.3 26	0	0	0	77	156	0	0	0	0	0	0.7	15	13.4	14	1	10	6	10	5.1	5.1	74
	2	1014.6	1018.7	28.3	18.7	25.8	-0.7	31.7 31+	0.3 26	0	0	0	77	156	0	0	0	0	0	0.7	15	13.4	14	1	10	6	10	5.1	5.1	74
	2	1014.6	1018.7	28.3	18.7	25.8	-0.7	31.7 31+	0.3 26	0	0	0	77	156	0	0	0	0	0	0.7	15	13.4	14	1	10	6	10	5.1	5.1	74
	2	1014.6	1018.7	28.3	18.7	25.8	-0.7	31.7 31+	0.3 26	0	0	0	77	156	0	0	0	0	0	0.7	15	13.4	14	1	10	6	10	5.1	5.1	74
DELAWARE	20	1012.9	1015.8	28.6	18.1	22.1	-0.9	33.3 30+	1.9 27	5	0	0	77	195	126	67	10	0	0	1.3	11	13.3	30	4	7	10	10	5.7	5.7	62
	20	1012.9	1015.8	28.6	18.1	22.1	-0.9	33.3 30+	1.9 27	5	0	0	77	195	126	67	10	0	0	1.3	11	13.3	30	4	7	10	10	5.7	5.7	62
	20	1012.9	1015.8	28.6	18.1	22.1	-0.9	33.3 30+	1.9 27	5	0	0	77	195	126	67	10	0	0	1.3	11	13.3	30	4	7	10	10	5.7	5.7	62
	20	1012.9	1015.8	28.6	18.1	22.1	-0.9	33.3 30+	1.9 27	5	0	0	77	195	126	67	10	0	0	1.3	11	13.3	30	4	7	10	10	5.7	5.7	62
FLORIDA	17	1013.6	1015.9	28.7	15.0	22.3	-1.5	31.1 13+	0.2 26	0	0	0	77	235	136	17	0	0	0.7	15	13.0	19	23	8	11	12	5.6	5.6	77	
	17	1013.6	1015.9	28.7	15.0	22.3	-1.5	31.1 13+	0.2 26	0	0	0	77	235	136	17	0	0	0.7	15	13.0	19	23	8	11	12	5.6	5.6	77	
	5	1015.6	1016.2	20.3	20.6	24.4	-0.6	31.1 25+	1.9 26	0	0	0	79	129	-2	37	15	3	0	2.4	11	10.7	32	24+	5	17	9	6.1	6.1	77
	244	1014.5	1014.5	20.7	15.3	21.1	-0.1	31.1 12	5.0 26	0	0	0	75	93	-9	39	13	1	0	0.0	21	9.8	30	24	9	7	15	6.7	6.7	53
GEORGIA	308	1014.5	1014.5	20.7	15.3	21.1	-0.1	31.1 12	5.0 26	0	0	0	75	93	-9	39	13	1	0	0.0	21	9.8	30	24	9	7	15	6.7	6.7	53
	41	1014.5	1014.5	20.7	15.3	21.1	-0.1	31.1 12	5.0 26	0	0	0	75	93	-9	39	13	1	0	0.0	21	9.8	30	24	9	7	15	6.7	6.7	53
	136	1002.0	1015.8	28.3	16.6	22.4	0.0	32.2 11+	0.3 26	0	0	0	74	117	14	36	11	7	0	0.3	17	13.4	28	12	7	8	10	6.6	6.6	74
	108	1003.1	1015.8	27.9	16.6	22.4	0.0	32.2 11+	0.3 26	0	0	0	77	96	5	31	14	6	0	0.5	22	10.1	56	12	8	15	6.2	6.2	74	
HAWAII	194	1014.9	1016.4	26.5	14.4	20.4	0.1	32.2 10	5.0 26	1	0	0	72	102	2	34	14	7	0	1.6	18	12.1	36	25	7	6	18	6.4	6.4	59
	14	1014.9	1016.4	26.5	14.4	20.4	0.1	32.2 10	5.0 26	1	0	0	72	102	2	34	14	7	0	1.6	18	12.1	36	25	7	6	18	6.4	6.4	59
	8	1016.4	1017.8	27.4	18.9	23.2	0.2	29.4 9	1.6 12	2	0	0	77	104	-152	14	20	0	0	0.4	14	7.6	36	21+	1	11	19	7.6	7.6	48
	15	1016.9	1017.8	29.6	19.2	24.4	0.3	31.7 11+	1.6 26	0	0	0	67	5	-16	2	5	0	0	0.9	6	12.1	36	12	2	24	5	5.1	5.1	70
IDAHO	31	1012.5	1017.8	27.7	19.2	23.9	-0.2	29.4 26	1.6 32+	0	0	0	78	41	-21	15	15	0	0	0.8	5	10.3	36	13	2	21	6	4.7	4.7	73
	865	1014.0	1013.3	22.2	6.4	14.3	0.2	32.2 22	0.6 30	1	0	0	45	33	-1	21	4	1	0	2.1	31	13.9	36	21	8	15	9	5.4	5.4	77
	431	1013.3	1013.3	22.2	6.4	14.3	0.2	32.2 22	0.6 30	1	0	0	45	33	-1	21	4	1	0	2.1	31	13.9	36	21	8	15	9	5.4	5.4	77
	1358	1013.3	1013.3	22.2	6.4	14.3	0.2	32.2 22	0.6 30	1	0	0	45	33	-1	21	4	1	0	2.1	31	13.9	36	21	8	15	9	5.4	5.4	77
ILLINOIS	96	1014.4	1016.4	23.9	15.0	19.4	-1.3	30.6 19+	0.3 5	0	0	0	63	154	23	68	11	2	0	1.1	18	13.4	36	26	8	11	12	5.9	5.9	55
	201	1014.4	1016.4	23.9	15.0	19.4	-1.3	30.6 19+	0.3 5	0	0	0	63	154	23	68	11	2	0	1.1	18	13.4	36	26	8	11	12	5.9	5.9	55
	185	1014.4	1016.4	23.9	15.0	19.4	-1.3	30.6 19+	0.3 5	0	0	0	63	154	23	68	11	2	0	1.1	18	13.4	36	26	8	11	12	5.9	5.9	55
	177	1014.4	1016.4	23.9	15.0	19.4	-1.3	30.6 19+	0.3 5	0	0	0	63	154	23	68	11	2	0	1.1	18	13.4	36	26	8	11	12	5.9	5.9	55
INDIANA	199	1014.8	1016.8	22.6	9.0	15.8	-0.6	30.6 10+	1.1 24	0	0	0	65	37	-61	18	6	4	0	1.2	19	13.9	36	26	7	10	10	5.7	5.7	73
	221	1015.0	1015.0	21.9	7.7	14.8	-0.1	30.6 10+	1.1 24	0	0	0	65	37	-61	18	6	4	0	1.2	19	13.9	36	26	7	10	10	5.7	5.7	73
	179	1016.7	1016.7	24.7	10.8	17.8	0.3	31.7 30	3.9 5	0	0	0	60	34	-54	20	7	2	0	1.3	19	16.1	36	26	8	12	11	5.6	5.6	73
	116	1001.4	1015.1	24.2	10.8	17.5	-1.2	31.1 10	2.8 5	0	0	0	68	94	-17	30	12	5	0	0.2	21	11	25	15	2	14	5.2	5.2	59	

# CLIMATOLOGICAL DATA

METRIC UNITS

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State and Station	Pressure			Temperature										Precipitation				Wind				No of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)							
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max 32° or above	Min 0° or lower	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days With thunderstorms 25 mm or more	Total	Snow, ice pellets	Resultant speed	Resultant direction		Speed	Direction	Fastest mile (1.6 kilometers)	Date	Clear 0-3	Partly cloudy, 4-7	Cloudy, 8-10
INDIANA FORT WAYNE	241	995.4	1015.3	22.2	9.2	15.7	0.4	31.1	10+	-1.1	1	0	1	7.8	61	67	-31	27	9	2	0	1.7	25	15.0	5	7	9	11	12	6	0
	241	986.6	1015.5	23.1	8.2	16.2	0.1	31.1	10+	-0.6	1	0	0	10.0	7	57	-47	14	11	3	0	1.5	20	13.4	5	1	13	6	12	5	0
	236	986.8	1014.8	23.7	8.7	14.7	0.1	30.0	9+	-1.1	1	0	0	9.3	67	77	-4	23	10	8	0	1.5	21	11.2	5	1	7	12	12	6	0
	236	986.8	1014.8	23.7	8.7	14.7	0.1	30.0	9+	-1.1	1	0	0	9.3	67	77	-4	23	10	8	0	1.5	21	11.2	5	1	7	12	12	6	0
IOWA BURLINGTON	211	979.0	1013.6	22.0	10.2	16.5	-0.1	31.7	9	-3.3	1	0	0	7.8	59	98	7	44	3	5	0	1.5	23	18.2	22	1	16	13	8	5	0
	264	972.0	1013.6	22.0	9.7	16.2	0.1	31.6	10+	-2.2	1	0	0	7.7	57	84	-4.3	21	1	7	0	1.5	21	18.3	23	17	9	9	13	6	0
	422	972.0	1013.7	20.9	7.8	14.4	-0.1	29.6	10+	-0.6	1	0	0	7.2	66	55	-6.3	21	11	7	0	1.5	24	23.2	26	1	7	12	12	6	0
	265	982.7	1014.5	21.4	7.6	14.6	-0.3	30.0	10+	-0.0	1	0	1	7.8	63	97	-0	23	10	4	0	1.7	24	18.3	26	17	6	12	11	6	0
KANSAS CHICAGO	448	981.7	1013.2	22.8	9.2	15.0	-1.1	30.4	10	-1.1	11	0	1	8.9	66	53	-5.4	25	6	4	0	1.0	13	15.8	5	17	8	12	11	0	0
	787	972.5	1012.9	22.4	8.2	15.8	-1.9	31.1	10	-1.1	11	0	1	8.3	65	88	0	32	13	3	0	1.1	13	15.2	5	17	9	10	15	0	0
	1114	982.2	1013.1	20.8	6.9	13.9	-1.1	31.1	10+	-1.1	11	0	3	7.2	71	114	-40	54	13	4	0	1.1	14	14.3	26	23	5	10	14	0	0
	267	982.1	1014.5	23.8	10.7	17.3	-0.8	31.1	10+	-2.8	11	0	0	11.1	72	57	-36	21	9	6	0	1.1	15	15.8	6	23	5	10	15	0	0
LOUISIANA BATON ROUGE	403	986.8	1014.1	23.9	11.7	17.8	-1.1	30.0	17	-1.7	11	0	0	11.1	67	77	-14	25	7	8	0	1.1	15	15.8	6	23	5	10	15	0	0
	205	984.4	1016.0	21.9	9.4	15.7	-1.7	29.4	11	-0.6	5	0	0	10.6	73	102	7	22	11	2	0	1.7	25	12.5	32	24	11	9	11	7	0
	294	980.4	1015.8	22.9	11.0	17.3	-0.5	30.6	11	-3.5	5	0	0	10.0	66	106	0	27	12	4	0	1.7	21	8.0	24	27	11	7	13	5	0
	145	997.6	1015.0	23.8	11.0	17.9	-0.3	30.6	11+	-3.9	5	0	0	10.6	66	91	-1.5	24	12	4	0	1.5	25	18.3	24	27	11	9	12	5	0
MISSISSIPPI JACKSON	20	1013.2	1015.5	28.0	16.5	22.3	-1.5	32.2	11+	-6.3	2+	2	0	17.8	78	136	25	65	9	6	0	1.7	14	11.6	37	23	11	12	8	5	0
	3	1013.5	1014.5	27.7	17.6	22.7	-1.3	31.7	17+	-11.7	14	0	0	17.8	78	187	58	14	6	0	0	1.7	15	13.0	36	3	9	12	10	5	0
	1	1013.9	1014.6	28.9	18.4	23.7	-0.3	32.2	16+	-6.9	2+	4	0	17.6	71	111	5	35	11	5	0	1.1	13	11.2	35	3	9	11	11	5	0
	77	1004.7	1013.8	27.3	15.2	21.2	-1.6	32.2	10	-6.9	14	1	0	16.7	79	203	75	92	1	8	0	1.1	17	13.4	25	24	6	13	12	6	0
MISSOURI ST. LOUIS	190	992.4	1017.0	17.5	7.4	12.6	2.7	32.2	9	-0.0	6	1	1	7.2	73	109	33	37	18	1	0	1.3	12	13.0	14	5	4	5	22	8	0
	13	1014.6	1017.0	17.4	8.4	12.9	1.4	33.3	9	-0.0	7+	1	2	7.2	73	131	44	4	17	1	0	1.3	12	13.0	14	5	4	5	22	8	0
	45	1016.5	1016.1	23.4	12.9	16.2	0.6	31.1	10+	-3.9	1	0	0	12.2	70	105	14	41	16	+	0	1.4	26	12.5	4	24	7	7	17	6	0
	182	1015.2	1014.4	19.6	10.3	14.9	1.3	33.3	10+	-2.8	7	2	0	10.0	72	119	27	34	15	1	0	1.4	25	13.2	58	4	7	9	16	4	0
NEBRASKA LINCOLN	301	970.0	1014.4	18.9	9.7	14.3	1.1	32.2	10	-1.1	7	1	0	8.3	72	105	4	29	13	1	0	1.4	29	9.8	33	5	6	9	16	7	0
	210	989.4	1015.2	16.4	4.4	10.4	0.2	30.0	8	-2.2	5	0	7	5.0	74	64	-5	25	12	5	0	1.4	20	11.2	18	18	4	7	20	7	0
	189	991.2	1015.3	19.6	7.6	13.6	-0.5	30.6	11	-0.6	5	0	0	7.8	70	72	-12	21	11	2	0	1.3	20	13.4	4	11	14	14	14	5	0
	235	987.1	1014.8	19.2	8.3	13.6	0.6	31.1	8	-2.0	1	0	2	7.2	65	40	-39	17	13	3	0	1.1	20	13.9	2	24	4	10	17	7	0
NEBRASKA LINCOLN	339	983.1	1015.1	22.9	7.6	14.3	-0.3	31.1	8	-2.2	1	0	2	7.2	65	35	-44	21	11	2	0	1.0	22	13.0	3	3	10	20	7	0	0
	430	983.2	1015.2	19.9	5.2	11.4	-0.1	27.8	10+	-2.8	4	0	6	5.6	64	47	-24	16	11	3	0	1.1	21	12.3	4	24	2	13	10	7	0
	296	983.4	1015.0	17.6	7.9	13.9	-0.2	30.4	9+	-1.7	1	0	2	7.8	71	34	-10	34	17	3	0	1.1	21	17.9	5	1	15	10	7	0	0
	431	981.9	1015.1	13.5	2.3	7.9	-1.1	26.7	10	-0.1	1	0	10	6.1	65	50	-19	34	17	3	0	1.2	21	11.9	4	24	2	13	10	7	0
NEBRASKA LINCOLN	191	991.0	1015.1	16.6	6.9	12.0	-0.4	27.2	10	-2.6	5	0	2	6.1	65	50	-19	34	17	3	0	1.2	21	11.9	4	24	2	13	10	7	0
	270	981.9	1015.4	15.6	5.7	9.7	0.2	26.7	10	-2.2	5	0	2	6.1	65	55	-22	16	13	2	0	1.2	21	11.9	4	24	2	13	10	7	0
	430	981.1	1014.9	13.7	3.2	8.4	-1.2	28.3	17	-2.2	1	0	4	0.6	64	153	64	69	13	4	0	1.4	20	13.0	12	20	3	12	10	7	0
	350	979.3	1014.5	13.2	2.3	7.8	-0.5	27.8	17	-2.8	15	0	13	0.6	61	144	-25	20	12	1	0	1.4	20	13.0	12	20	3	12	10	7	0
NEBRASKA LINCOLN	234	983.4	1014.1	19.3	6.3	13.1	-0.9	31.1	17	-0.6	12	1	1	4.4	58	116	30	34	12	1	0	1.7	20	13.0	12	20	3	12	10	7	0
	356	986.5	1014.1	19.5	6.2	13.8	-0.6	31.1	17	-0.6	12	1	1	4.1	67	197	-9	34	10	0	0	1.7	20	13.0	12	20	3	12	10	7	0
	313	977.1	1014.3	15.9	4.4	10.7	-2.1	30.6	19	-1.1	21+	0	3	6.1	67	131	40	64	17	1	0	1.7	20	13.0	12	20	3	12	10	7	0
	313	977.1	1014.3	15.9	4.4	10.7	-2.1	30.6	19	-1.1	21+	0	3	6.1	67	131	40	64	17	1	0	1.7	20	13.0	12	20	3	12	10	7	0
NEBRASKA LINCOLN	94	1003.7	1015.4	27.7	14.8	21.0	-1.3	31.7	11+	-6.7	24	0	0	16.1	78	140	29	74	8	4	0	1.4	19	12.1	37	11	8	14	14	5	0
	20	1013.2	1015.5	28.0	16.5	22.3	-1.5	32.2	11+	-6.3	2+	2	0	17.8	78	136	25	65	9	6	0	1.7	14	11.6	37	23	11	12	8	5	0
	3	1013.5	1014.5	27.7	17.6	22.7	-1.3	31.7	17+	-11.7	14	0	0	17.8	78	187	58	14	6	0	0	1.7	15	13.0	36	3	9	12	10	5	0
	1	1013.9	1014.6	28.9	18.4	23.7	-0.3	32.2	16+	-6.9	2+	4	0	17.6	71	111	5	35	11	5	0	1.1	13	11.2	35	3	9	11	11	5	0



## METRIC UNITS

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## METRIC UNITS

1977

[illegible]

# CLIMATOLOGICAL DATA

## METRIC UNITS

MAY 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation				Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
											Max 37.2 °C or above	Min. 0 °C or lower																		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



## (Base 65°F.)

est	
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$(\text{Base} = \text{F}_2)$ 

MAY 1979

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# STORM SUMMARY

MAY 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				φ ALL OTHER				
	NUMBER	DAYS	DEATHS	INJURIES	↑ DAMAGE	DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		DEATHS	INJURIES	↑ DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS									
Alabama	5	2		1	5				4			2																5	?	
Alaska																														
Arizona												5			2	4														
Arkansas				2	6			?	?		6	?	?	1	1	4											1	?	?	
California	*																													
Colorado																														
Connecticut	*				3			?	4			3			5	3			3								1	1	5	?
Delaware																														
Florida	27	5	1	112	7			05	4		4	06	C	1	1	5											3		07	C
Georgia								3	5		2	5	4			4														
Hawaii	*																													
Idaho	*																													
Illinois											2	4																		
Indiana												5	?																	
Iowa		1	2		5							5																5		
Kansas		2	2		4			6	6		4	6	5																	
Kentucky		1	1		4																									
Louisiana																5	?											5	?	
Maine	*																													
Maryland & DC		1	1		6					3		3				?												3	3	
Massachusetts										3	5			1		3														
Michigan												11	5		1	3														
Minnesota		3	3		6			4		1	3	5																5		
Mississippi																1	4											4	4	
Missouri										3	5		4	3			4													
Montana																														
Nebraska								2	3			5			2	3												5	5	
Nevada																														
New Hampshire	*																													
New Jersey														1	1	?	?												?	?
New Mexico		2	2		2			2	6																		2	2	4	?
New York								2																					7	?
North Carolina		1	1		4			1	4	4				2	2	3														
North Dakota		1	1		4							3																		
Ohio										2	2	5			4															
Oklahoma		7	2	1	26	6		5	6			6	6	1	2	5												5	5	
Oregon																													?	?
Pacific	*																													
Pennsylvania										3	4		5			4												5	?	
Puerto Rico		1	1		4							1	5													2		6	5	
Rhode Island										5	3					3														
South Carolina										4	6		4	2	4													3	2	
South Dakota		3	3		?	?																								
Tennessee		3	1		5	5		?	?		1	?	?	1		4													7	
Texas		39	12		5	7		6	6	1	32	7	5	1	9	5	?											11	6	?
Utah												5																		
Vermont	*																													
Virginia																														
Virgin Islands	*												3															3		
Washington		1	1																											
West Virginia																											1	1	6	
Wisconsin		2	2		5			?	?							5														
Wyoming		1	1		4								4																	

## Average monthly values

MAY 1979

[illegible]



## Average monthly value

MAY 1979

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## Average monthly values

MAY 1979

GLASGOW, MT 913 MB														GRAND JUNCTION, CO 882 MB														LEAT FALLS, MT 888 MB														GREEN BAY, WI 929 MB														PULASKI, ILL. 935 MB													
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg.		Speed m.p.s.		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg.		Speed m.p.s.		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg.		Speed m.p.s.		Resultant Wind																											
5FC	31	6.96	5.5	2.7	0.7	1.3	1.477	10.8	3.4	12	4.1	3.1	31	1.118	5.9	-7.7	1.2	11	210	7.4	-6.6	1.1	7.1	11	219	7.8	-6.6	1.1	7.1	11	219	7.8	-6.6	1.1	7.1	11	219	7.8	-6.6	1.1	7.1																												
1000	95.6																																																																				
900	31	992	7.9	-6.6	10	5																																																															
850	31	1.663	6.3	-1.8	28	3.5	17	1.417	12.5	2.7	13	3.1	31	1.477	7.3	-1.5	2.9	31	988	7.7	1.5	27	2.3	11	1.037	13.4	7.4	26	2.9																																								
800	31	1.957	-2.8	-3.4	30	5.4	31	1.979	10.5	4.1	14	2.3	31	1.970	-4.1	-4.1	2.8	3.7	11	1.951	2.5	-3.9	28	5.5	11	2.020	7.8	2.3	27	5.1																																							
750	31	2.477	-2.4	-6.3	30	6.4	31	2.511	7.0	-2.2	21	1.3	31	2.457	-7.7	-6.3	2.8	6.0	11	2.470	-1.1	-8.4	27	7.1	11	2.550	5.0	-2.2	27	6.1																																							
700	31	3.026	-1.9	-9.0	30	9.1	31	3.077	3.1	-4.6	25	3.2	31	3.046	-3.3	-9.9	2.8	6.0	11	3.020	2.8	-13.2	27	10	11	3.110	2.0	-8.5	27	6.9																																							
650	31	3.607	-7.2	-11.3	30	9.1	31	3.673	-1.2	-7.3	26	3.1	31	3.674	-7.2	-11.9	2.8	6.0	11	3.606	-6.0	-17.1	27	10.0	10	3.705	-7.2	-12.4	27	8.7																																							
600	31	4.227	-10.9	-19.1	30	10.7	31	4.306	-5.6	-12.0	26	4.4	31	4.284	-11.0	-20.5	2.8	9.2	11	4.227	-9.8	-20.1	27	11.0	11	4.339	-5.1	-15.9	27	6.9																																							
550	31	4.890	-15.2	-23.7	25	12.3	31	4.982	-10.9	-17.0	26	6.1	31	4.907	-15.4	-26.1	2.9	10.1	11	4.893	-14.0	-24.6	27	11.9	11	5.018	-9.0	-20.3	27	9.9																																							
500	31	5.603	-20.4	-28.1	29	13.3	31	5.708	-15.5	-25.3	26	7.4	31	5.620	-20.3	-31.6	2.8	11.7	11	5.610	-18.9	-29.2	27	13.4	11	5.749	-13.7	-26.5	27	11.4																																							
450	31	6.375	-25.7	-34.5	28	14.2	31	6.488	-20.4	-32.1	27	8.1	31	6.193	-25.8	-37.3	2.7	14.1	11	6.368	-23.8	-34.5	27	15.1	11	6.584	-19.0	-31.4	27	12.0																																							
400	31	7.219	-31.5	-44.8	26	1																																																															
350	31	8.154	-38.4	-44.8	26	17.4	11	8.152	-37.7	-43.8	21	5.1	31	8.171	-38.6	-46.2	2.9	17.0	11	8.176	-37.0	-44.9	27	18.0	11	8.367	-32.4	-42.8	28	16.4																																							
300	31	9.193	-46.3			28	18.3	31	-4.61	-43.0	-49.7	28	11.1	31	9.206	-46.7		29	18.4	31	9.224	-44.5		27	20.8	11	9.433	-40.8	-47.9	28	16.4																																						
250	31	10.387	-52.3			28	19.8	31	10.566	-51.1		24	12.4	31	10.598	-53.6		29	18.1	31	10.626	-51.3		27	22.6	11	10.650	-49.4		27	17.9																																						
200	31	11.820	-54.8			28	18.9	31	11.994	-57.8		27	12.1	31	11.820	-55.6		29	18.2	31	11.858	-55.9		27	21.2	11	12.086	-57.0		28	19.1																																						
150	31	12.774	-58.3			28	18.4	31	12.934	-58.7		27	12.1	31	12.774	-56.4		29	18.5	31	12.807	-58.9		27	18.6	11	12.927	-58.7		29	18.6																																						
100	31	13.666	-58.6			28	18.4	31	13.805	-57.8		27	12.1	31	13.653	-54.5		29	18.7	31	13.689	-55.2		27	18.3	11	13.958	-58.6		27	15.7																																						
75	31	14.844	-52.9			28	11.4	26	14.950	-59.0		27	11.0	31	14.822	-54.3		28	10.4	30	14.853	-55.5		27	11.2	11	15.033	-60.7		27	13.7																																						
50	31	16.282	-53.3			28	7.6	26	16.346	-59.4		27	10.1	31	16.249	-55.2		28	8.8	26	16.277	-55.6		26	8.1	31	16.418	-61.2		28	10.7																																						
25	31	17.717	-54.3			28	5.0	26	17.741	-59.7		27	6.7	31	17.673	-55.4		28	5.1	29	17.695	-56.0		26	5.4	11	17.803	-60.7		28	6.0																																						
0	31	18.573	-54.1			28	1.6	26	18.579	-58.0		27	5.0	31	18.579	-58.0		29	5.8	25	18.546	-55.5		27	4.3	31	18.836	-59.6		30	4.6																																						
60	31	19.562	-54.2			28	2.5	26	19.551	-57.1		27	5.1	31	19.510	-54.9		29	7.0	26	19.530	-55.1		27	2.7	11	19.602	-58.7		28	2.7																																						
40	31	20.772	-53.6			31	1.5	28	20.709	-55.9		26	1.7	31	20.676	-54.7		31	1.1	28	20.646	-54.7		28	1.5	11	20.754	-56.1		31	2.0																																						
20	31	22.169	-53.0			12	4.1	25	22.138	-54.2		26	1.4	31	22.107	-53.8		31	6.2	26	22.128	-53.6		34	4.6	11	22.481	-53.6		37	2.4																																						
0	31	24.074	-51.1			08	1.0	24	24.008	-50.6		34	1.0	31	23.963	-51.6		09	1.4	28	23.988	-51.8		01	4.7	11	24.047	-49.8		08	2.4																																						
25	30	25.728	-49.5			09	1.1	28	25.198	-48.8		31	4.9	30	25.153	-50.0		08	1.2	26	25.166	-50.1		33	5.5	11	25.245	-47.9		07	1.5																																						
50	30	26.487	-47.2			09	2.2	27	26.323	-47.3		31	7.1	30	26.233	-47.3		08	1.6	26	26.249	-49.5		31	7.9	11	26.379	-44.6		08	1.2																																						
75	30	28.601	-44.3			04	9	22	28.594	-42.9		26	5.5	23	28.532	-43.7		09	1.2	24	28.560	-43.9		34	8.8	27	28.675	-41.5		02	2.3																																						
100	31	31.355	-39.3			03	5	17	31.357	-38.6		26	4.8	13	31.295	-36.5		35	4	12	31.306	-39.1					17	31.444	-37.3		32																																						



## Average monthly values

MAY 1979

KING SALMON, AK 1005 MB										KRODO, CAROLINE IS. 1007 MB										KOTZEBUE, AK 1012 MB										LAKE CHARLES, LA 1014 MB										LANDER, WY 828 MB									
Standard pressure surface mb		No of observations		Dynamic height meters		Temperature °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Resultant Wind																	
1000	10	15	4.6	1.0	2.4	10	28.3	24.6	08	1.4	25	5	-4.4	-2.3	30	1.9	30	5	18.6	17.5	08	.7	31	1,697	5.3	.4	22	.8																					
950	10	477	4.2	1.0	5.4	1	28.3	24.7	08	1.9	24	172	2.5	-3.4	32	1.6	30	124	20.3	16.6	13	1.7																											
900	10	915	1.8	-2.0	5.6	1	28.3	19.1	09	3.7	25	951	1.1	-7.6	24	.3	30	1,029	16.2	8.8	18	4.3																											
850	10	1,372	1.8	-2.0	5.6	1	28.3	14.9	09	3.1	25	1,409	-1.2	-10.2	21	.1	30	1,514	15.1	3.1	19	4.1																											
800	10	1,829	1.8	-2.0	5.6	1	28.3	11.5	09	2.7	25	1,890	-4.1	-12.9	22	1.7	30	2,024	12.1	-21.2	42	3.1	1,978	6.8	-1.6	30	1.1																						
750	10	2,286	-2.6	-13.4	12	7.7	31	2,581	13.6	8.4	10	2,936	-7.4	-15.5	23	2.4	30	2,563	10.0	-6.0	24	4.1	31	2,506	4.5	-4.7	30	2.0																					
700	10	2,688	-11.9	-17.7	12	7.2	31	3,160	18.7	3.4	10	3,425	-10.7	-19.3	22	2.7	30	3,133	6.8	-8.3	26	3.9	31	3,065	.7	-7.5	30	3.0																					
650	10	2,985	-15.6	-21.1	11	7.6	31	3,774	7.4	.4	10	4,125	-14.9	-23.2	21	2.7	30	3,737	3.0	-12.6	27	5.3	31	3,656	-3.4	-10.1	29	4.8																					
600	10	3,051	-19.4	-25.9	11	8.5	31	4,069	3.6	-3.6	09	4,469	-17.9	-27.4	21	3.1	30	4,160	-1.4	-17.5	27	6.8	31	4,284	-7.8	-13.5	28	6.3																					
550	10	3,054	-22.4	-31.1	12	9.1	31	4,133	-7.2	-7.8	08	4,745	-20.0	-32.4	22	3.3	30	4,068	-6.1	-22.1	27	8.4	31	4,955	-12.5	-19.5	28	8.4																					
500	10	3,038	-26.0	-35.9	12	9.4	31	4,091	-9.4	-13.6	05	4,425	-24.6	-36.5	22	3.4	30	5,807	-11.1	-27.5	28	9.4	31	5,676	-17.3	-25.7	28	10.1																					
450	10	3,030	-33.6	-44.1	12	10.2	31	4,794	-9.0	-18.5	09	4,205	-31.9	-43.9	23	3.4	30	8,607	-16.6	-32.9	27	11.0	31	6,457	-22.9	-31.6	28	12.0																					
400	10	3,045	-39.7	-43.8	12	10.7	30	7,617	-14.8	-24.4	10	4,425	-38.0	-44.3	23	4.0	30	7,981	-22.8	-37.3	27	12.3	31	7,310	-29.4	-38.1	28	13.2																					
350	10	3,084	-45.5		11	10.5	30	8,419	-21.1	-32.5	10	4,425	-38.0	-44.3	23	5.5	30	8,450	-29.9	-43.2	27	14.2	31	8,252	-36.8	-41.9	28	15.2																					
300	10	3,060	-50.1		11	9.1	31	9,736	-27.9	-41.8	10	5,525	-40.9	-53.7	22	2.9	30	10,271	-34.3	-49.2	27	16.1	31	9,290	-46.8	-52.8	28	16.2																					
250	10	3,064	-50.8		12	6.4	30	11,011	-39.5	-50.0	09	5,525	-51.05	-56.1	23	4.7	29	10,756	-47.6		28	21.6	31	10,496	-52.4		28	18.6																					
200	10	3,113	-48.3		14	3.9	30	12,457	-52.1		09	5,525	-51.58	-51.1	22	2.5	29	12,201	-55.9		28	26.3	31	11,918	-58.1		28	17.7																					
175	10	3,149	-47.9		16	4.1	30	13,349	-58.9		07	4,715	-52.40	-59.8	19	1.3	29	13,004	-59.4		27	26.7	31	12,758	-58.0		28	17.7																					
150	10	3,180	-47.9		17	2.4	30	14,299	-66.9		05	4,715	-53.41	-60.8	20	1.6	29	14,002	-62.1		27	25.2	31	13,732	-56.7		28	15.0																					
125	10	3,200	-48.3		17	2.4	30	15,162	-73.7		04	4,715	-54.13	-63.7	21	1.7	29	15,125	-69.5		27	20.0	30	13,884	-58.8		28	13.4																					
100	10	3,217	-48.5		16	2.8	30	16,665	-79.0		05	4,425	-56.07	-69.2	16	1.9	29	16,461	-66.4		27	14.0	30	16,294	-58.0		27	10.0																					
75	10	3,254	-49.5		15	2.7	30	17,936	-76.6		04	2,425	-57.54	-69.8	15	2.0	29	17,831	-66.6		27	7.3	30	17,700	-57.7		28	5.5																					
50	10	3,318	-49.8		15	2.2	30	19,133	-72.5		33	1,405	-58.40	-84.4	16	2.0	29	18,642	-64.5		27	3.0	29	18,542	-56.9		28	4.5																					
25	10	3,427	-49.9		18	2.3	30	19,631	-67.6		27	.9	-59.43	-88.4	16	2.0	29	19,596	-62.0		06	1.0	29	19,519	-56.7		28	2.7																					
0	10	3,480	-50.0		2.1	30	20,748	-62.2		08	2.6	-58.40	-88.4	17	2.1	29	20,748	-58.8		05	1.0	29	20,678	-55.5		28	1.4																						
30	10	3,221	-50.0		17	1.5	30	22,135	-58.9		09	10.3	-52.105	-88.4	11	2.6	28	22,146	-55.1		09	4.8	29	22,104	-55.0		31	.8																					
40	10	3,235	-50.3		12	1.6	30	23,263	-53.4		09	22.6	-53.299	-88.4	11	3.0	29	24,002	-50.7		08	6.8	29	23,956	-52.0		27	.4																					
21	10	3,251	-49.7		10	1.9	29	25,130	-50.7		09	26.6	-55.201	-87.9	10	3.3	27	25,196	-48.5		08	8.7	29	25,142	-50.4		30	.8																					
25	10	3,269	-49.1		17	1.7	26	26,653	-47.8		09	26.7	-53.267	-87.9	08	4.2	27	26,675	-45.5		08	8.0	28	26,605	-47.8		27	2.1																					
10	10	3,290	-49.5		15	2.0	25	28,525	-43.7		33	3.3	-50.20	-88.4	09	5.2	26	28,518	-42.8		08	9.2	25	28,534	-41.7		29	1.6																					
7	11	3,317	-48.8		09	3.4	18	31,306	-36.2		09	38.8	-31.327	-87.9				31,368	-39.2					30	31,318	-38.3																							
								7	33,778	-33.0																																							

LITTLE ROCK, AR 1014 MA										LONGVIEW, TX 1000 MB										MCGRATH, AK 997 MB										MAJURO, MARSHALL IS. 1011 ME									
500	31	76	22.1	19.5	06	3.0	31	79	15.8	13.5	19	-2	31	124	17.0	15.0	19	1.0	31	103	5.2	-1	28	7	31	3	28.3	24.8	07	5.6									
1000	31	157	21.6	18.4	07	4.6	31	13	16.1	12.1	13	3	31	161	17.1	12.1	13	3	31	141	8.0	-1	27	7	31	102	26.7	23.5	07	6.6									
950	31	801	18.1	16.5	07	4.6	31	560	16.3	10.3	22	1.9	31	560	17.4	12.8	20	4.0	31	497	7.4	-1	27	7	31	555	23.5	21.4	08	9.9									
900	31	101	12.1	10.1	07	3.1	31	1.0	7.6	6.3	10	1.0	31	1.0	7.6	6.3	10	1.0	31	1.0	7.6	6.3	-1	27	7	31	102	26.7	23.5	07	6.6								
850	31	1,547	12.3	8.9	07	5.0	31	1,501	12.7	3.9	24	3.9	31	1,506	13.7	4.1	22	5.1	31	1,402	1.0	-5	10	1.3	31	1,520	17.9	18.9	08	9.5									
800	31	2,054	10.3	8	07	4.5	31	2,007	9.5	-2	24	3.8	31	2,015	11.5	-1	23	4.7	31	1,887	-2	-5	7	2.2	31	2,039	16.0	9.4	09	8.4									
750	31	1,590	9.9	-7.8	08	3.8	31	2,541	6.9	-4	9	2.6	31	2,553	9.2	-4	25	4.7	31	2,395	-6	-3	-10	3.4	31	2,586	13.7	5.2	08	8.7									
700	31	3,161	7.9	-13.6	07	2.2	31	3,105	3.9	-8	07	5.7	31	3,121	5.4	-6	27	5.4	31	2,931	-10	-2	-14	4.8	31	3,165	10.4	2.9	09	7.2									
650	31	3,749	5.1	-15.5	06	1.3	31	3,704	0.2	-11	0	6.0	31	3,722	1.3	-10	28	7.0	31	3,441	-13	-10	-17	5.4	31	3,780	7.2	-5	09	6.4									
600	31	4,411	4.1	-16.3	06	0.4	31	4,340	-1	-15	0	8.2	31	4,358	-1	-16	2	8.2	31	4,135	-8	-3	-2	6.0	31	4,435	8.3	-2	09	5.9									
550	31	4,113	-2.6	-22.4	07	0.5	31	5,022	-8	-2	0	8.5	31	5,047	-7	-2	0	8.1	31	4,747	-22	-2	-12	5.5	31	5,136	-5	-7	11	5.5									
500	31	5,888	-8.3	-26.1	02	1.4	31	5,755	-12.9	-25	27	9.2	31	5,784	-11.6	-26	27	9.9	31	5,441	-27	-2	-3	6.0	31	5,894	-4.3	-13	10	2.0									
450	31	6,670	-13.5	-6.6	01	1.3	31	6,551	-18.2	-31	47	10.1	31	6,583	-17.1	-30	27	11.4	31	6,192	-32	-2	-0	6.4	31	6,717	-8.8	-20	08	4.4									
400	31	7,554	-20.1	-24.6	05	2.0	31	7,420	-24.4	-37	1	10.0	31	7,455	-23.6	-36	27	12.1	31	7,013	-38	-3	-4	7.4	31	7,621	-14.4	-26	13	2.2									
350	31	8,232	-23.1	-42.3	05	1.7	31	8,282	-3	-43	6	11.8	31	8,260	-2	-42	27	12.0	31	8,260	-2	-42	-1	12	8.8	31	8,522	-13.1	-32	09	3.8								
300	31	9,019	-36.3	-40.9	10	6.4	31	9,450	-40.1	-48	0	13.1	31	9,492	-39.3	-48	28	15.4	31	8,931	-51	-6	-1	1.8	31	9,730	-27	-41	09	3.2									
250	31	10,057	-46.4	-4	29	7.9	31	10,669	-49.5	-5	28	17.6	31	10,716	-48.6	-6	28	19.6	31	10,106	-54	-3	11	6.9	29	11,011	-39.9	-49	23	5.4									
200	31	12,305	-56.4	29	11.9	31	12,100	-58.0	-28	20	6.3	12,151	-58.1	27	22.8	30	11,551	-50.0	13	3.2	12,495	-52	-3	25	7.2	30	12,945	-52	-3	25	7.2								
175	31	12,194	-61.6	28	15.0	31	12,935	-60.8	-27	23.4	31	12,987	-60.5	-27	25.3	30	12,926	-60.8	12	3.1	12,936	-59	-3	25	8.0	30	13,346	-59	-3	25	8.0								
150	31	14,048	-65.9	28	14.5	31	13,946	-60.1	-27	21.5	31	13,944	-61.7	-27	23.9	30	13,440	-60.7	15	2.7	14,293	-67	-2	27	8.2	30	14,293	-67	-2	27	8.2								
125	31	15,187	-68.4	28	11.4	31	15,010	-61.9	-27	17.9	31	15,070	-61.9	-27	20.0	30	14,440	-60.5	15	2.8	14,440	-60	-5	28	7.9	30	14,440	-60	-5	28	7.9								
100	31	16,517	-70.7	28	7.0	31	16,407	-63.2	-27	13.1	31	16,435	-65.2	-27	14.6	30	16,108	-60.8	16	2.4	16,651	-79	-2	29	6.4	30	16,651	-79	-2	29	6.4								
75	31	17,440	-70.0	26	2.4	31	17,779	-63.1	-27	7.5	31	17,795	-64.4	-27	6.7	30	17,572	-60.3	16	2.6	17,924	-76	-6	28	3.7	30	17,924	-76	-6	28	3.7								
50	31	18,637	-68.6	14	1.8	31	18,605	-61.5	-27	4.7	31	18,613	-63.3	-27	3.2	30	18,449	-60.9	17	2.2	18,802	-72	-1	27	3.3	30	18,802	-72	-1	27	3.3								
25	31	19,566	-66.0	10	4.4	31	19,566	-59.6	-26	1.6	31	19,566	-61.1	-26	0.9	30	19,461	-60.1	16	2.1	19,620	-67	-5	27	3.0	30	19,620	-67	-5	27	3.0								
0	31	20,680	-67.1	0	2.0	31	20,711	-57.3	-26	0.6	31	20,711	-57.3	-26	0.2	30	20,618	-60.1	14	2.2	20,731	-63	-5	27	3.0	30	20,731	-63	-5	27	3.0								
40	31	22,082	-57.4	09	9.1	31	22,125	-54.7	09	2.5	30	22,172	-54.6	09	5.4	30	22,221	-49.8	11	2.6	22,221	-49	-8	10	10.3	30	22,221	-49	-8	10	10.3								
30	31	23,920	-52.7	09	11.4	31	23,990	-50.5	09	2.4	30	23,983	-50.5	09	5.4	30	24,007	-49.2	11	2.0	23,943	-54	-6	09	21.9	30	23,943	-54	-6	09	21.9								
25	31	25,104	-50.1	09	11.7	31	25,114	-48.5	09	2.4	28	25,193	-48.3	09	6.7	30	25,204	-48.8	10	2.5	25,119	-51	-7	09	28.6	30	25,119	-51	-7	09	28.6								
20	31	26,572	-47.2	09	13.2	31	26,556	-46.4	09	2.5	27	26,664	-45.2	08	6.5	30	26,675	-47.5	08	3.1	26,582	-47	-7	09	29.7	30	26,582	-47	-7	09	29.7								
15	31	28,491	-44.1	09	14.3	31	28,590	-42.7	06	1.9	27	28,598	-42.4	08	5.5	27	28,597	-45.1	08	4.5	17	28,502	-43	-2	09	32.7	30	28,502	-43	-2	09	32.7							
10	31	31,243	-39.4	09	16.2	31	31,335	-39.4	12	11.3	31	31,361	-38.9	12	11.3	31	31,361	-38.9	12	11.3	31	31,361	-38.9	12	11.3	31	31,361	-38.9	12	11.3	31	31,361							
7																																							

MEDFORD, OR 97C MB										MERIDA, MEXICO 1011 MB										MIDLAND, TX 914 MB										MONTERREY, MEXICO 961 MB										MONETT, MO 964 MB									
SFC	31	401	7.7	4.6	32	.6	31	11	21.1	22.0	09	1.3	31	874	15.1	10.0	16	2.0	31	423	20.0	17.3	13	.4	31	438	12.9	10.9	13	1.4																			
1000	31						31	103	25.1	21.3	11	3.7																																					
500	31	574	10.4	5.6	24	8.0	31	554	22.6	20.0	13	8.7																																					
400	31	1,028	9.2	3.1	31	.9	31	1,025	20.7	13.9	13	6.6	31	1,000	15.8	9.6	17	3.7	31	1,017	18.1	13.8	12	1.3	31	1,015	14.1	8.6	22	5.0																			
300	31	1,500	7.1	.4	32	.4	31	1,518	18.5	8.7	13	4.0	31	1,497	13.9	3.9	22	4.9	31	1,508	17.7	8.0	17	2.3	31	1,496	12.5	3.1	23	5.4																			
200	31	1,997	5.8	2.1	33	1.6	31	2,036	6.7	4.6	16	1.5	31	2,000	1.5	5.5	25	4.0	31	2,126	16.0	3.9	12	2.8	31	2,003	1.7	.1	28	9.0																			
100	31	2,522	2.9	11.6	27	2.2	34	2,581	12.5	-1.2	24	1.8	31	2,541	11.0	-4.2	26	3.1	31	2,571	13.3	.3	-2.4	1.8	31	2,537	6.7	-8.5	25	5.0																			
750	31	3,077	-2.2	16.0	24	3.4	31	3,156	9.2	-6.9	27	2.0	31	3,113	7.2	-8.7	26	4.5	31	3,148	9.5	-3.5	26	3.3	31	3,100	3.4	-8.4	26	5.3																			
600	31	3,667	-3.3	19.6	24	5.1	31	3,767	6.9	-11.0	31	2.8	31	3,718	2.7	-10.6	26	5.3	31	3,759	5.5	-8.8	27	5.2	31	3,697	-.4	12.2	27	6.0																			
500	31	4,296	-.5	22.6	24	8.6	31	4,417	2.1	-14.7	32	3.8	31	4,359	-2.0	-15.2	26	7.2	31	4,408	.7	-13.7	27	6.0	31	4,333	-.4	-15.8	28	7.1																			
400	31	4,971	11.1	24.1	24	11.6	31	5,092	1.8	-18.6	31	5.5	31	5,045	-1.7	-19.3	25	8.4	31	5,116	1.6	-17.6	26	8.0	31	5,041	1.6	-17.6	26	8.0																			
300	31	5,694	-16.4	-29.4	28	10.2	31	5,866	-6.6	-21.3	31	6.1	31	5,783	-11.6	-25.6	25	10.4	31	5,843	-10.0	-23.9	25	9.9	31	5,746	-13.4	-27.8	28	9.6																			
200	31	6,474	-21.5	-39.3	29	11.7	30	6,682	-11.6	-28.8	30	8.0	31	6,592	-17.2	-31.3	25	11.9	31	6,648	-15.0	-30.2	26	11.1	31	6,540	-18.7	-32.9	28	11.4																			
100	31	7,334	-28.4	-38.2	29	13.5	30	7,574	-17.4	-33.3	29	11.1	31	7,454	-23.7	-38.2	25	13.3	31	7,528	-20.9	-36.6	27	14.5	31	7,407	-24.9	-38.3	28	12.8																			
750	31	8,280	-15.1	-36.6	30	15.5	29	8,561	-24.6	-39.0	29	15.1	31	8,418	-31.0	-43.8	25	14.5	31	8,503	-28.4	-42.3	26	17.1	31	8,367	-32.2	-44.1	27	14.3																			
600	31	9,131	-13.1	-36.1	30	16.1	29	9,411	-26.6	-45.4	29	20.1	31	9,490	-39.3	-48.7	25	17.4	29	9,591	-36.7	-49.1	27	21.0	31	9,434	-40.7	-50.6	27	15.7																			
500	31	10,539	-51.7	-43.0	30	20.2	30	10,661	-37.2	-45.4	29	23.1	31	10,714	-49.4	-58.6	26	20.7	31	10,813	-46.4	-56.1	27	28.3	31	10,649	-50.4	-59.7	27	16.5																			
400	31	11,960	-58.4	-48.6	29	19.3	25	12,391	-53.8		28	28.1	31	12,151	-59.2		26	23.7	28	12,288	-55.4		26	32.8	30	12,070	-58.8		27	19.8																			
300	31	12,797	-55.5	-48.6	29	19.0	29	13,317	-60.0		28	27.3	31	12,990	-59.9		26	25.4	28	13,129	-60.5		26	32.0	29	12,906	-60.4		27	21.2																			
200	31	11,763	-59.0	-48.6	28	16.3	29	14,185	-66.1		28	24.5	31	13,951	-61.1		26	22.7	28	14,080	-63.9		26	29.5	29	13,868	-59.4		27	20.8																			
100	31	14,007	-55.4	-48.6	27	13.5	29	15,276	-71.1		28	20.2	31	15,079	-62.8		26	18.6	28	15,189	-67.2		26	23.3	29	15,008	-60.4		27	17.3																			
750	31	16,302	-55.6	-48.6	26	9.8	28	16,587	-78.2		29	13.3	31	16,446	-64.6		26	13.7	27	16,527	-70.0		26	18.2	29	16,398	-60.4		27	12.9																			
600	31	17,497	-59.8	-48.6	28	5.4	27	17,864	-74.4		29	13.4	31	17,805	-64.8		26	12.0	27	17,852	-70.6		26	6.8	29	17,776	-61.2		27	8.1																			
500	31	18,134	-58.6	-48.6	29	3.4	27	18,668	-70.8		27	3.2	31	18,625	-62.6		26	4.6	27	18,648	-67.6		23	2.4	29	18,609	-59.8		27	5.7																			
400	31	19,505	-57.6	-48.6	30	2.6	27	19,595	-65.0		29	6.4	31	19,591	-60.5		22	4.4	27	19,589	-63.8		10	2.0	29	19,577	-58.8		27	2.9																			
300	31	20,099	-56.8	-48.6	29	1.4	27	20,722	-55.6		30	7.4	31	20,723	-57.7		10	2.8	27	20,718	-59.5		09	5.8	29	20,729	-56.8		28	3																			
200	31	22,799	-55.3	-48.6	29	1.3	27	23,131	-55.1		30	9.2	31	22,162	-54.7		10	2.9	27	22,129	-55.5		08	6.7	29	22,151	-54.3		09	3.0																			
100	31	23,924	-53.5	-48.6	31	1.8	25	23,979	-51.0		30	12.1	31	23,979	-50.9		10	3.2	25	23,979	-50.9		09	10.1	29	23,979	-50.9		08	1.0																			
750	31	25,094	-51.9	-48.6	22	1.3	23	25,171	-48.2		29	13.5	29	25,192	-48.7		09	6.5	27	25,178	-48.6		09	8.9	29	25,206	-48.7		02	.6																			
600	31	26,561	-49.0	-48.6	11	1.7	21	26,654	-45.1		29	14.7	28	26,665	-45.1		08	5.4	27	26,654	-45.1		08	10.1	28	26,686	-45.9		36	1.4																			
500	31	27,884	-47.7	-48.6	27	2.6	19	28,586	-41.4		29	16.6	27	28,598	-42.4		08	5.5	24	28,587	-42.3		08	11.3	26	28,626	-42.7		30	2.3																			
400	31	28,110	-38.7	-48.6	27	2.4	7	31,157	-37.4		22	31.3	357		-82.4		09	5.1	12	31,362	-38.1		13	31,412	-37.6																								

## Average monthly values

MAY 1976



## Average monthly values

SAULT STE MARIE, MI 1011 MB										SALT LAKE CITY, UT 899 MB										SAN DIEGO, CA 999 MB										SAN JUAN, P. R. 1014 MB										SAULT STE MARIE, MI 989 MB																																																																																																									
Standard pressure: surface mb.		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed m/s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed m/s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed m/s																																																																																																													
950	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9
1000	24	1.41	11.6	8.6	1.1	1.0	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	11.6	8.6	1.1	1.0	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	11.6	8.6	1.1	1.0	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	11.6	8.6	1.1	1.0	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9																													
950	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9	31	1.41	8.6	6.7	2.2	1.1	1.288	10.7	3.5	16	2.4	31	1.274	14.1	10.3	25	4.5	11	6	23.6	22.0	12	1.6	31	221	5.6	2.3	05	1.9																													
900	31	1.426	7.9	1.7	1.1	1.1	1.476	12.6	4.7	17	3.0	31	1.480	12.8	2.1	32	1.2	31	1.044	18.6	15.6	13	4.5	31	993	5.4	8	22	1.3	31	1.426	7.9	1.7	1.1	1.1	1.476	12.6	4.7	17	3.0	31	1.480	12.8	2.1	32	1.2	31	1.044	18.6	15.6	13	4.5	31	993	5.4	8	22	1.3	31	1.426	7.9	1.7	1.1	1.1	1.476	12.6	4.7	17	3.0	31	1.480																																																																										

## Average monthly values

MAY 1979



# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

MAY 1979

Sun's zenith distance										Sun's zenith distance									
Date	A M				*	P M				Date	A M				*	P M			
	78 °	75 °	70 °	60 °		60 °	70 °	75 °	78 °		78 °	75 °	70 °	60 °		60 °	70 °	75 °	78 °
MAUNA LOA OBSERVATORY, HI										TUCSON, AZ									
Air mass										Air mass									
	1.34	2.07	2.01	1.34	*	1.34	2.01	2.07	3.34		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
1-----	1.39	1.17	1.27	1.41	-----	-----	-----	-----	-----	2-----	.72	.84	1.00	1.16	1.44	1.14	-----	-----	-----
2-----	1.09	1.17	1.26	1.40	1.55	1.40	1.27	1.17	1.08	3-----	.74	.83	.96	1.11	1.38	1.14	.98	.84	.72
3-----	1.10	1.18	1.29	1.43	1.58	1.43	1.32	1.21	1.13	4-----	.72	.84	1.01	1.22	1.44	1.16	.98	.85	.74
4-----	1.12	1.22	1.32	1.43	1.55	1.36	1.24	1.13	1.06	5-----	.86	.96	1.08	1.26	1.42	1.25	1.10	.98	.89
5-----	1.33	1.36	1.41	1.46	-----	-----	-----	-----	-----	6-----	.84	.95	1.09	1.27	1.46	1.23	1.00	.84	.74
6-----	1.13	1.22	1.31	1.40	-----	-----	-----	-----	-----	7-----	.89	.99	1.12	1.26	1.46	1.24	1.06	-----	-----
7-----	1.12	1.15	1.27	1.39	1.52	-----	-----	-----	-----	8-----	-----	.99	1.09	-----	1.43	-----	-----	-----	-----
8-----	1.06	1.15	1.25	1.36	-----	-----	-----	-----	-----	9-----	-----	-----	-----	-----	-----	-----	-----	-----	.84
9-----	1.08	1.16	1.27	1.40	1.54	-----	-----	-----	-----	10-----	.88	.99	1.12	1.29	1.47	1.26	1.11	.98	.86
10-----	1.13	1.21	1.32	1.42	-----	-----	-----	-----	-----	11-----	.95	1.07	1.18	1.32	1.48	1.24	1.01	.91	.83
11-----	1.14	1.21	1.31	1.42	-----	-----	-----	-----	-----	12-----	.83	.94	1.08	1.26	1.47	1.24	1.06	.93	.81
12-----	1.12	1.15	1.27	1.39	1.52	-----	-----	-----	-----	13-----	.83	.93	1.06	1.24	1.44	1.15	.94	.82	.69
13-----	1.06	1.15	1.25	1.36	-----	-----	-----	-----	-----	14-----	.75	.86	.98	1.15	1.37	-----	-----	-----	-----
14-----	1.08	1.16	1.27	1.40	1.54	-----	-----	-----	-----	15-----	.84	.94	1.06	1.23	1.39	1.05	.86	.77	.66
15-----	1.13	1.21	1.32	1.42	-----	-----	-----	-----	-----	16-----	-----	-----	-----	-----	-----	1.10	.85	-----	-----
16-----	1.14	1.21	1.31	1.42	-----	-----	-----	-----	-----	17-----	.72	.84	.98	1.17	-----	1.12	.92	.83	.73
17-----	1.12	1.15	1.27	1.39	1.52	-----	-----	-----	-----	18-----	.78	-----	-----	1.20	1.37	-----	-----	-----	-----
18-----	1.06	1.15	1.25	1.36	-----	-----	-----	-----	-----	19-----	-----	-----	.93	1.12	1.33	-----	-----	-----	-----
19-----	1.08	1.16	1.27	1.40	1.54	-----	-----	-----	-----	20-----	-----	-----	-----	-----	-----	-----	1.02	-----	-----
20-----	1.13	1.21	1.32	1.42	-----	-----	-----	-----	-----	21-----	-----	.84	-----	-----	1.38	1.13	1.01	.88	.78
21-----	1.14	1.21	1.31	1.42	-----	-----	-----	-----	-----	22-----	.79	.87	1.02	1.15	1.36	1.07	-----	-----	-----
22-----	1.12	1.15	1.27	1.39	1.52	-----	-----	-----	-----	23-----	.64	.76	.89	1.07	-----	-----	-----	-----	-----
23-----	1.06	1.15	1.25	1.36	-----	-----	-----	-----	-----	24-----	-----	-----	-----	-----	1.28	-----	-----	-----	-----
24-----	1.08	1.16	1.27	1.40	1.54	-----	-----	-----	-----	25-----	-----	.93	-----	-----	1.45	-----	-----	-----	-----
25-----	1.13	1.21	1.32	1.42	-----	-----	-----	-----	-----	26-----	-----	-----	1.01	1.17	-----	-----	-----	-----	-----
26-----	1.14	1.21	1.31	1.42	-----	-----	-----	-----	-----	27-----	-----	-----	-----	1.10	-----	-----	-----	-----	-----
27-----	1.12	1.15	1.27	1.39	1.52	-----	-----	-----	-----	28-----	.63	.76	.91	1.12	1.36	-----	-----	-----	-----
28-----	1.06	1.15	1.25	1.36	-----	-----	-----	-----	-----	29-----	-----	-----	-----	-----	1.38	1.16	1.00	.85	.76
29-----	1.08	1.16	1.27	1.40	1.54	-----	-----	-----	-----	30-----	.68	.80	.97	1.11	1.40	1.16	.99	.88	.73
30-----	1.13	1.21	1.32	1.42	-----	-----	-----	-----	-----	31-----	.74	.87	1.02	1.21	1.39	1.20	1.03	.93	.84
Averages	1.12	1.20	1.30	1.41	1.55	1.39	1.28	1.17	1.09	Averages	.78	.90	1.02	1.19	1.41	1.17	1.00	.88	.77

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . .	113	161	199	174	178	89	52	114	121	201	132	165	158	175	106	124	198	205	142	M	M	M	106	135	169	178	201	196	202	136	125	150

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $9 \times ^\circ\text{C} + 32$   
 5  
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- # No Storm Data Report received for this State.
- <> Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

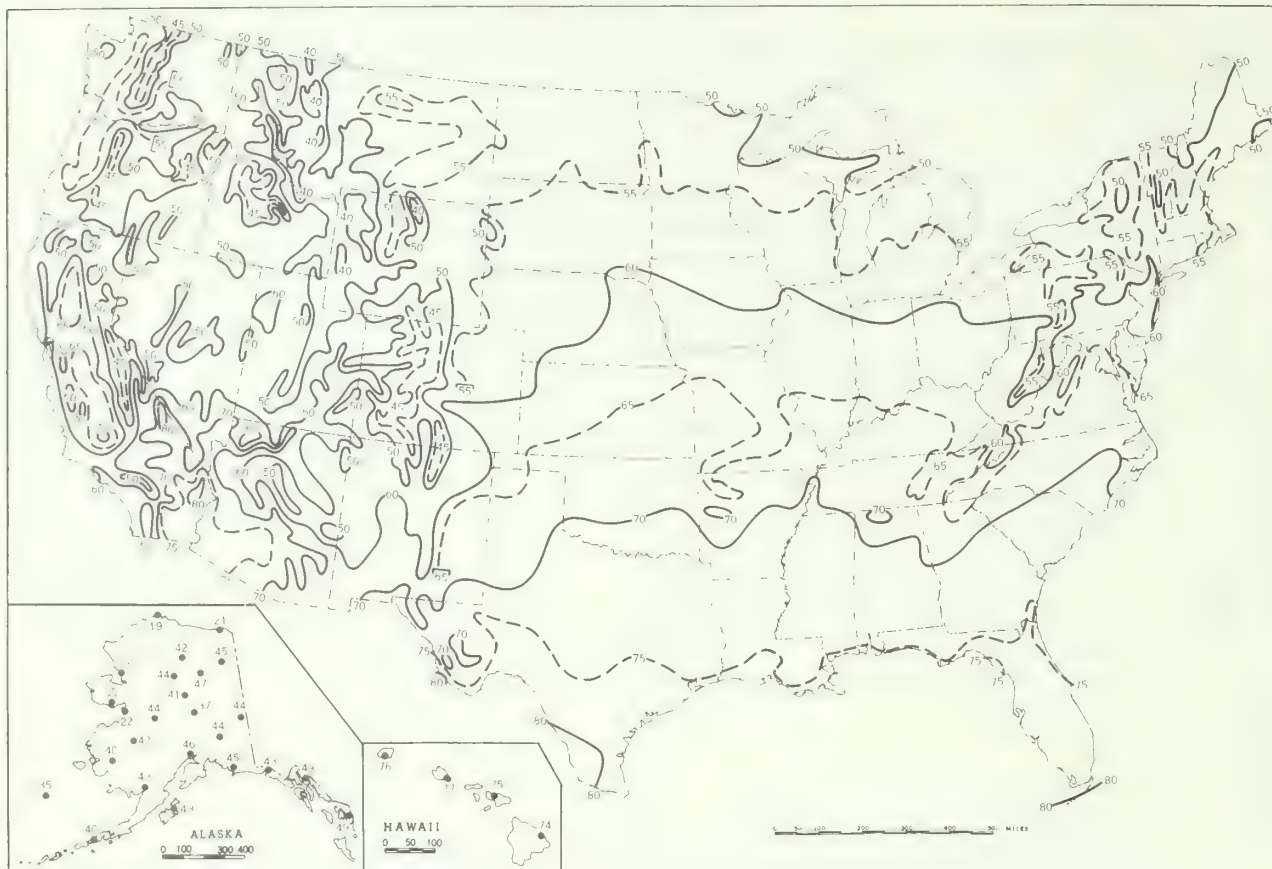
( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	MS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	CF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

**NET RADIATION:** The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

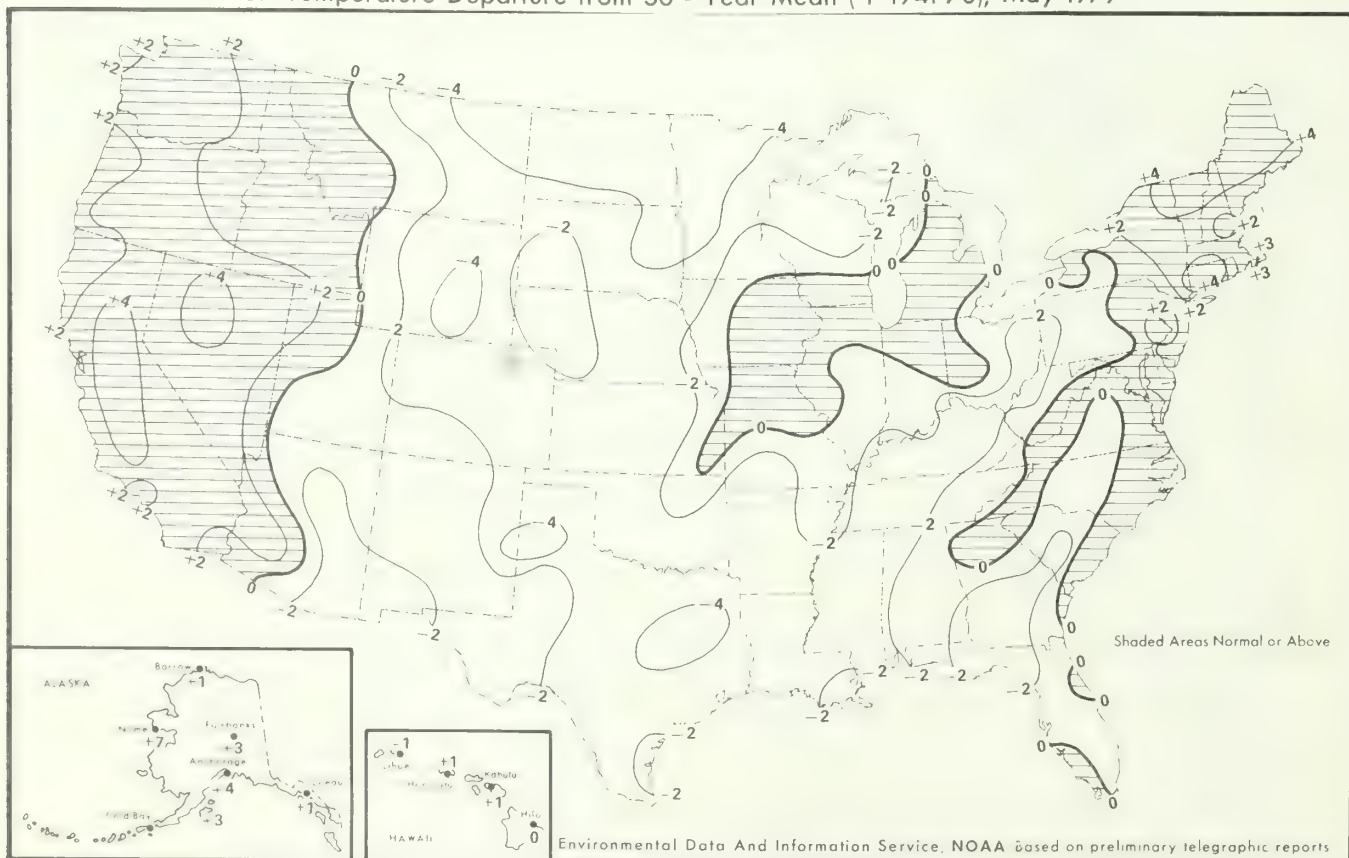
These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), May.

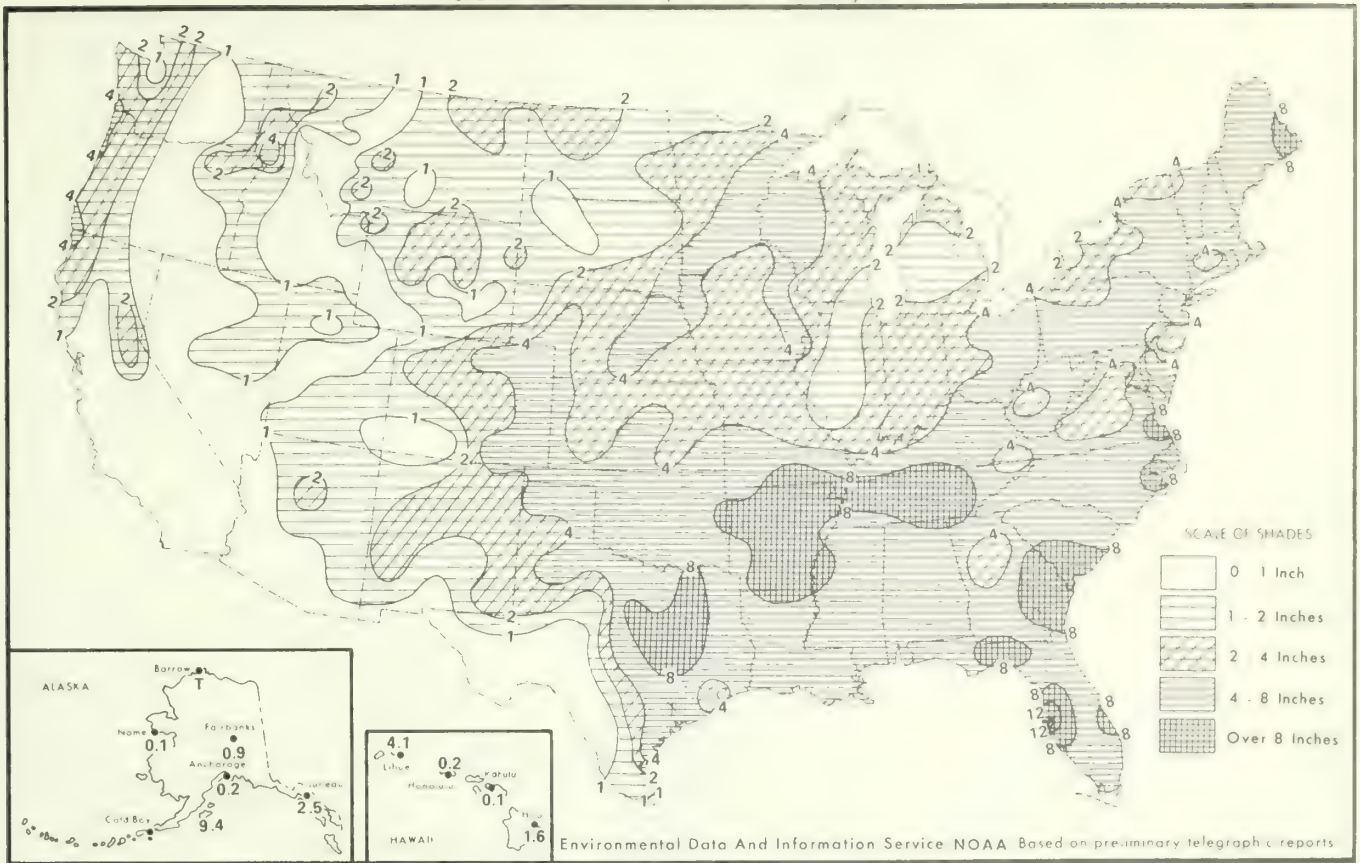


B. Temperature Departure from 30 - Year Mean (°F 1941-70), May 1979



Environmental Data And Information Service, NOAA based on preliminary telegraphic reports

Chart II. A Total Precipitation (Inches), May 1979



B. Percentage of Normal Precipitation, May 1979

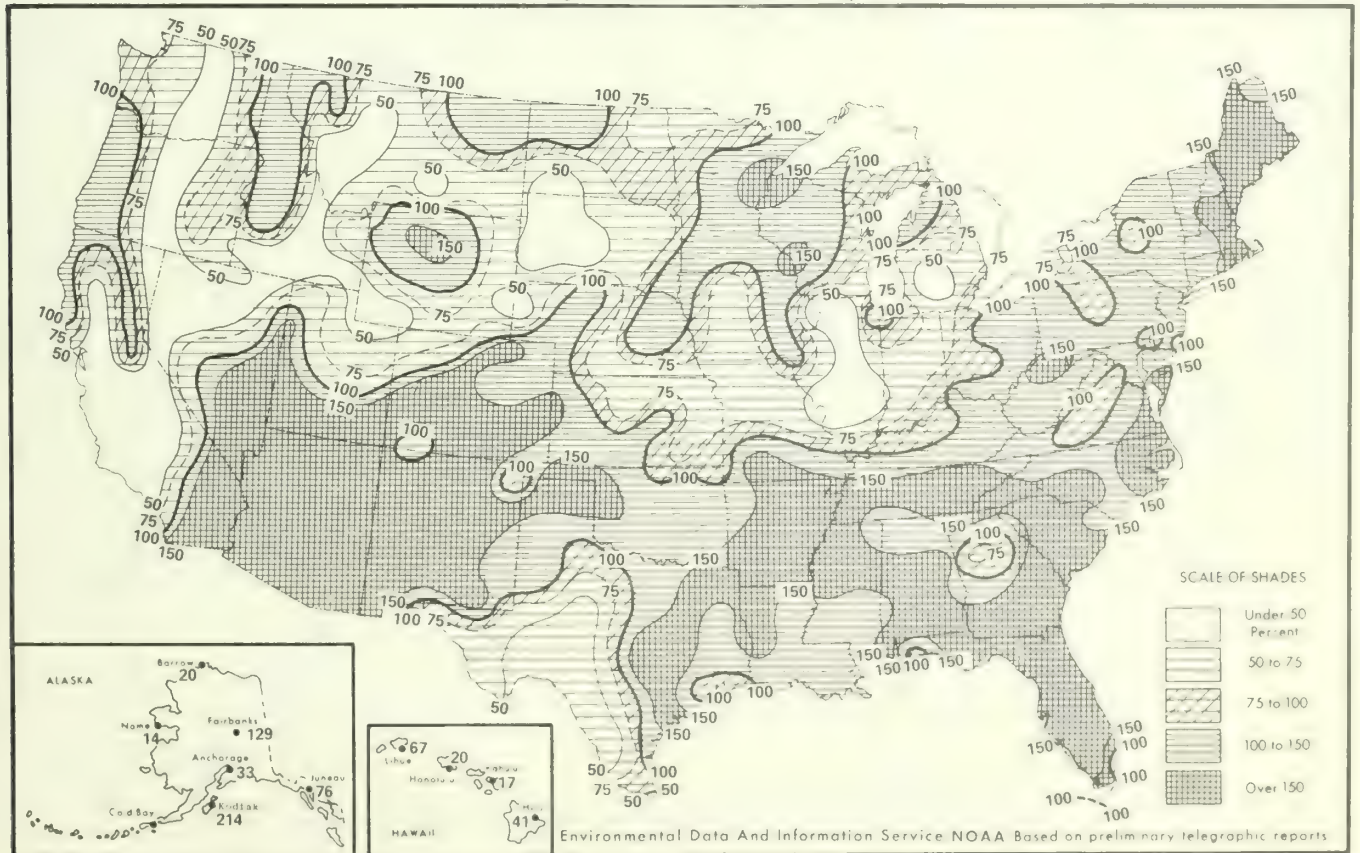
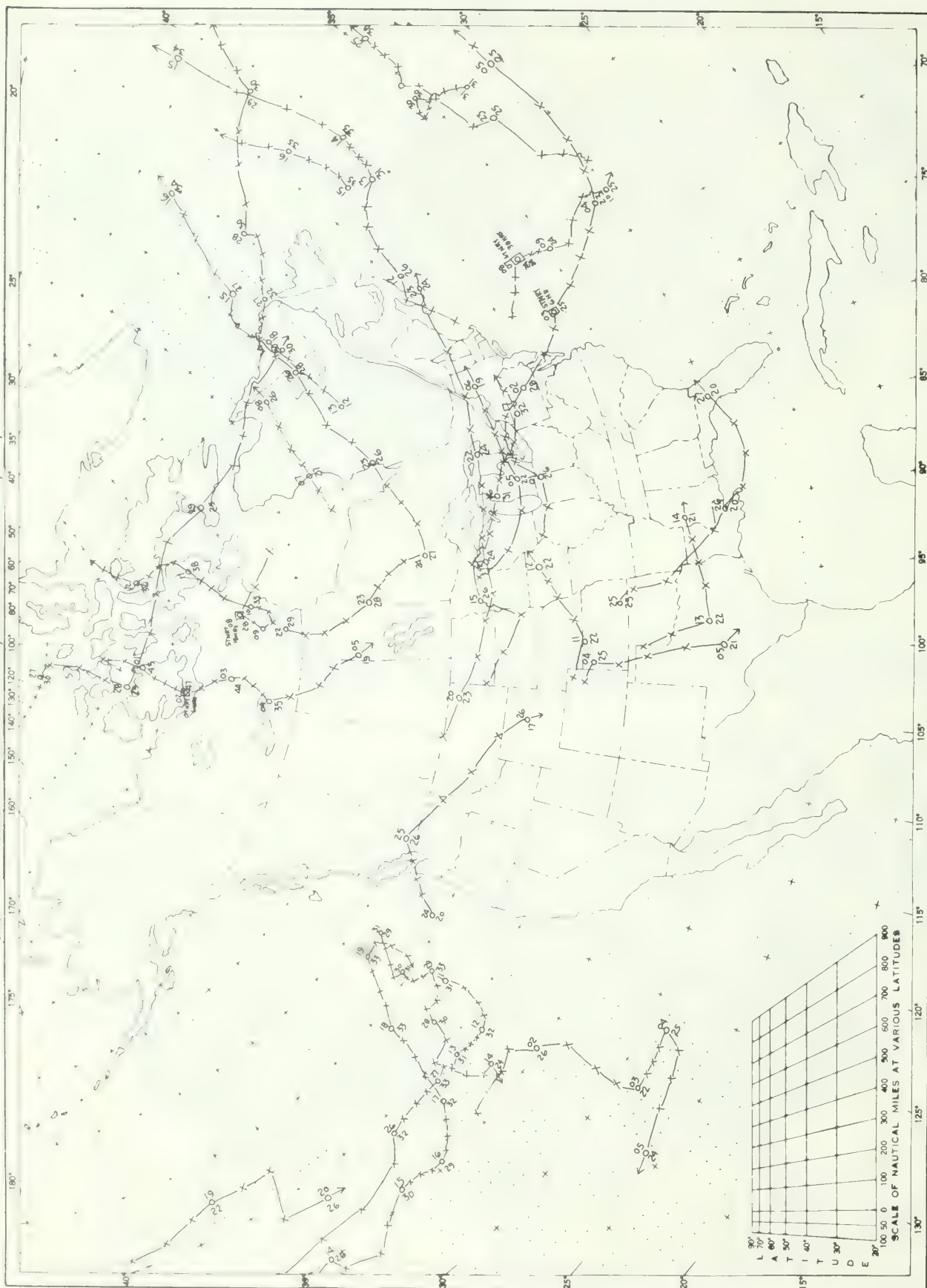


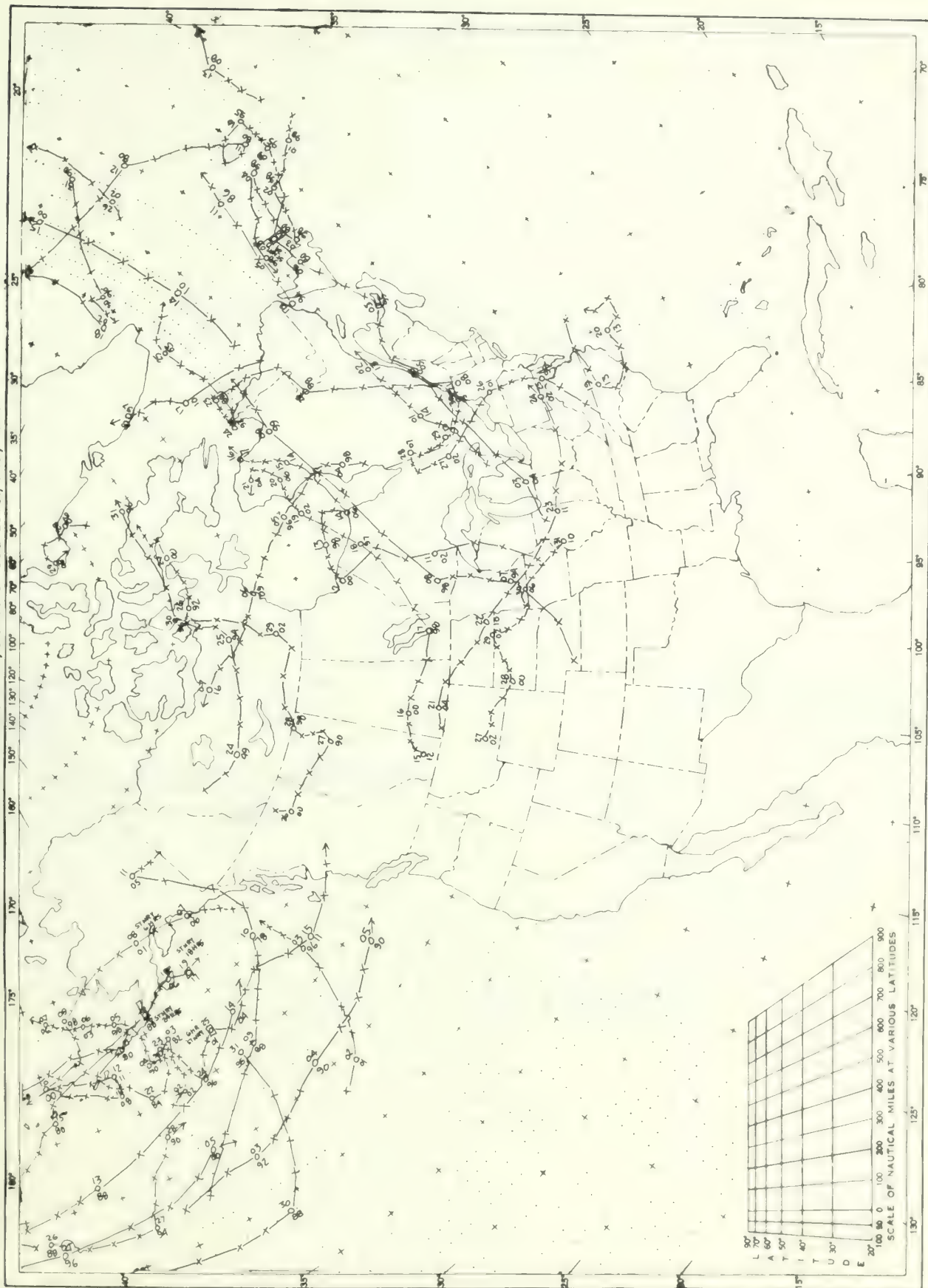


Chart III. Tracks of Centers of Anticyclones at Sea Level, May 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure below circle indicates date, figure below, pressure to nearest millibar.  
X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Tracks of Centers of Cyclones at Sea Level, May 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
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## CONTROLLED CIRCULATION RATE

JUNE 1979

VOLUME 30

NUMBER 6

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

noaa

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ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JUNE 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** A typical June provided thunderstorms east of the Rockies and relatively light rain west of that mountain range. However, the West became much drier than normal this year. East of the Rockies, the thunderstorms produced deluges of rain in some areas, but the very spotty rain left many portions of the Nation far below their normal June rainfall. An area from central Illinois to northern Arkansas had less than half the normal rainfall for the month. The southern coastal area, New England, North Dakota, and Montana were also much drier than normal. Temperatures ranged cooler than normal from New England down the Appalachians and across the South to New Mexico. Warm weather prevailed in the Southwest and the Plateau Region.

A low pressure system in Ohio, with a cold front extending southward, moved rapidly eastward during the first three days of June. Some heavy rain fell in the mid-Atlantic States and in the Southeast.

In the period of the 4th-10th, another upper air disturbance began moving out of the Southwest, and low-level winds carried moisture northward from the Gulf of Mexico. Thunderstorms and rain, heavy in places, fell from the middle Rio Grande Valley in Texas through the Great Lakes area. Severe weather, including tornadoes, covered this area. Rain totals for the week exceeded 5 inches in some places. Cool weather prevailed in the Rockies and western Plains, but warm temperatures were noted elsewhere.

The second week in June brought relief from severe weather and rain in most of the South. The exception took the form of a low pressure system that moved northward along the East Coast and spread rain from Florida to New England. Elsewhere, a series of storms moved across southern Canada and caused rain in that area and the northern half of the United

States. The weather was warm through most of the West, the Rockies, central and northern Plains, and through the Great Lakes. Maximum temperatures exceeded 100° in parts of the northern Plains.

Rain dampened nearly all of the Nation east of the Rockies during the week of the 18th-24th. The exception was central Texas and southward, where no rain fell. A storm system formed in the central Rockies trailing a cold front southwestward. The center of the storm moved to the central Plains and then northeastward through the western Great Lakes. The most rain occurred in the northern Plains, as the storm center pushed through and into the central Plains, where a wave formed on the front. Later in the week, thunderstorms with heavy rain headed through the Ohio Valley, northern Mississippi, and central Alabama. Cooler than normal readings blanketed most of the Rockies and Plateau, the northern Plains, Great Lakes, and eastern portion of the country. Other areas averaged up to 3° warmer than normal.

The last week in June saw precipitation in all but the southwestern quadrant of the Nation. As the week began, a high pressure center over the Great Lakes kept the weather cool and dry over the Midwest. When the high pressure moved eastward, warm, moist air rushed northward behind it and rekindled the showers and thunderstorms from Texas to the Great Lakes. A low pressure center trekked out of the northern Plains to the eastern Great Lakes by the end of June. The heaviest rain fell in central Texas and the central Mississippi Valley. However, as the month ended, heavy showers soaked southern Michigan, northern Indiana, and Ohio. Average temperatures for the week ranged warmer than normal west of a line from central Texas to central Wisconsin and cooler than normal in the East.



# TROPICAL STORM ANA

June 19 - 24, 1979

National Hurricane Center, NOAA  
Miami, Florida

Ana was the first June storm to develop east of the Lesser Antilles since 1933 and only the second such in 100 years of record. Ana was the earlier but the 1933 storm developed farther to the east.

The disturbance which was to become Ana left the African west coast on the 14th. First evidence that a tropical depression was forming came on the morning of the 19th when satellite pictures indicated a circulation was developing near 10°N 45°W. The depression moved towards the westnorthwest about 12 kts until late on the 20th when it slowed and turned to the northwest in response to a weak trough approaching in the higher latitude westerlies. Some slight strengthening occurred at this time. Air Force reconnaissance reports indicated the depression was nearing tropical storm strength late on the 21st, and this was confirmed on the morning of the 22d by another reconnaissance flight.

Ana was named at noon AST on the 22d, and gale warn-

ings were issued for the islands from Martinique to Guadeloupe because of the proximity of the storm. However, strong westerlies at high levels began shearing the convection from the circulation center, and Ana reached the islands as a minimal tropical storm late that day. Continued weakening took place as the depression turned more to the west and Ana was downgraded to a tropical depression on the morning of the 23d and to a tropical wave in the central Caribbean early on the 24th.

The maximum sustained winds in Ana were estimated to be 50 kts on the morning of the 22d with the minimum central pressure of 1005 mbs also occurring at that time.

There was no heavy rainfall in the islands and no reports of gale force winds. No deaths or significant damage have been reported.

# TROPICAL STORM ANA

## Preliminary Report

<u>DATE</u>	<u>TIME (GMT)</u>	<u>POSITION</u>		<u>WIND MAX. (KT)</u>	<u>PRESSURE (MIN) (MB.)</u>	<u>STAGE</u>
		<u>LATITUDE</u>	<u>LONGITUDE</u>			
19	1200	10.0	45.0	25	1011	DEPRESSION
	1800	10.2	46.0	25		
20	0000	10.5	47.0	25		
	0600	10.9	48.1	25		
	1200	11.3	49.2	25		
	1800	11.8	50.2	25		
21	0000	12.3	51.1	30	1009	
	0600	12.9	51.9	30		
	1200	13.5	52.7	30		
	1800	13.9	53.5	30		
22	0000	14.2	54.7	35	1007	STORM
	0600	14.2	55.8	40	1005	
	1200	14.2	56.9	50	1006	
	1800	14.1	58.3	40	1008	
23	0000	14.1	59.8	35	1010	
	0600	14.0	61.3	30	1012	
	1200	14.0	62.8	25		
	1800	14.0	64.5	25		
24	0000	14.0	66.2	25		



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JUNE 1979

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	2 Stations	100	20	Valley Head	46	12	Daphin Island 2	6.85	Montgomery WSO AP	.33
Alaska	Gakona 1 N	81	22	Barrow WSO AP	22	27	Yakutat WSO AP	13.84	Barrow WSO AP	.10
Arizona	Willow Beach	119	29	Sunrise Mountain	16	17	Black River Pumps	3.76	20 Stations	.00
Arkansas	1 Station	100	30	1 Stations	46	12+	Dermott 3 NE	8.77	Saint Francis	.88
California	Palm Springs	120	27	White Mountain	6	19	Less Valley	.90	266 Stations	.00
Colorado	2 Stations	104	30+	Berthoud Pass	11	1	Julesburg	4.49	Brouns Park Refuge	.09
Connecticut	Hartford WSO AP	95	16	Falls Village	42	26	Bridgeport WSO AP	3.29	Barkhamsted	.62
Delaware	Bridgeville 1 NW	89	7	Georgetown 5 SW	45	27+	Georgetown 5 SW	6.25	Newark University Farm	3.06
District of Columbia	1 Station	100	27+	Smith Creek	49	13+	Avon Park 2 W	10.17	Plant City	.56
Georgia	Mariettaville	115	23	Blairsville Exp Station	41	12	Folkston 3 SW	9.13	Newman	.50
Hawaii	2 Stations	91	28+	Mauna Kea Obs 111.2	24	31+	Mount Waialeale 1047	49.01	12 Stations	.00
Idaho	8 Stations	106	29	1 Stations	20	8+	Warren	2.23	2 Stations	.7
Illinois	Wheaton	109	16	Marengo	39	25	Elgin	8.59	Virginia	.49
Indiana	Evansville WSO AP	96	19	Angola	33	25	Spurgeon 2 N	12.10	Rockville	.89
Iowa	4 Stations	130	15+	1 Stations	36	1	Blackton 2 S	8.76	Wapello	1.43
Kansas	2 Stations	106	27+	Atwood	36	10	Cassoday	13.96	Dodge City WSO AP	.89
Kentucky	3 Stations	98	22+	2 Stations	41	26+	Boston 6 SW	10.02	Hickman 1 E	1.31
Louisiana	5 Stations	98	30+	Ashland 2 S	50	12	Cotton Valley	8.08	Lafayette FAA AP	.04
Maine	2 Stations	94	16	5 Stations	31	26+	2 Stations	4.24	Newcastle	.20
Maryland	2 Stations	97	10+	Oakland 1 SE	36	26+	Laurel 3 W	6.87	Hancock Freight Lab	1.62
Massachusetts	Boston WSO AP	95	16	Cheslet	24	26	Bedford	3.72	Rockport 1 ESE	.32
Michigan	Lapeer	94	10	Clampton Van Riper Park	27	24	Gull Lake Biol Station	9.28	Hesperia 4 WSW	1.54
Minnesota	Lamberton SW Exp Station	106	15	Hibbing Power Substation	25	1	Stillwater 1 SE	8.58	Hillook	1.02
Mississippi	Wiggins 3 SSE	102	36	University	48	12	Baldwyn	11.12	Wiggins 3 SSE	.25
Missouri	5 Stations	98	22+	2 Stations	41	25+	Lockwood	3.81	Parma	.20
Montana	Wolf Point	105	15	Wisdom	19	8	2 Stations	5.44	Potomac	.02
Nebraska	Omaha	106	14	2 Stations	29	24	Pawnee City	9.34	Stratton	1.38
Nevada	Sunrise Manr Las Vegas	115	29+	Rand Ranch Palisade	18	8	Lund	1.26	25 Stations	.00
New Hampshire	North Conway	94	17	Mount Washington	24	13	First Conn Lake	4.26	Black-Monter Dam	.42
New Jersey	2 Stations	90	18+	Cranford	32	12	Bridgeton 3 NE	7.55	Bound Brook 2 W	1.68
New Mexico	Orogrande	105	29	Luna Ranger Station	24	20	Canton	7.03	Fruitland 2 E	.04
New York	4 Stations	93	17+	Old Forge	28	28+	Monterkill	4.03	Chazy	.46
North Carolina	Hamble	95	27	Grandfather Mountain	37	12	Lake Lure	10.36	Franklin	1.29
North Dakota	3 Stations	105	14+	Carson	31	8	Napoleon	5.47	Powers Lake 1 N	.53
Ohio	Chillicothe-Mound CI	97	11	Carpenter 4 NW	45	25	Chilo Meldahl Dam	9.55	Painesville 4 NW	1.10
Oklahoma	Mangum Research Station	107	30	Baker City 2 E	42	1	Marlow 1 WSW	13.29	Cherokee Power Plant	1.08
Oregon	1 Station	100	29+	Unity	20	8	Tillamook 1 W	3.07	2 Stations	.00
Pennsylvania	Phoenixville 1 E	97	7	Clermont 4 NW	28	26+	Shippensburg	4.97	Austin 4 NNW	1.01
Puerto Rico	Manati 2 E	97	17	Yaguajay 1 NNE	23	28	San Lorenzo 3 S	23.58	Moravia	3.97
Rhode Island	Providence WSO AP	90	16	Kingston	37	13	Kingston	1.95	Woonsocket	1.13
South Carolina	3 Stations	98	19+	3 Stations	46	12	Chesaw	11.01	Clark Hill Dam	.80
South Dakota	Midland	110	14	Deerfield 4 NW	22	10	Cedar Butte	7.86	Camp Crook	1.27
Tennessee	4 Stations	95	23+	Townesville	42	12	Moscow	6.82	Pikeville	.92
Texas	Candelaria	109	22	2 Stations	41	12+	Uvalde	14.90	El Paso WSO AP	.03
Utah	Saint George	105	28	2 Stations	20	9+	Pine View Dam	2.12	39 Stations	.00
Vermont	Vernon	93	17	West Burke	29	26	Mount Mansfield	3.89	Union Village Dam	.82
Virginia	4 Stations	92	19+	Monterey	35	25	Rockfish	11.02	Hopewell	2.33
Virgin Islands	Truman Field FAA AP	98	25+	Alex Hamilton Field FAA	66	28	Estate Rust OP Twist	12.29	Winberg	2.66
Washington	1 Station	101	29+	3 Stations	25	7	Neah Bay 1 E	2.94	2 Stations	.00
West Virginia	Wayne 2	92	7	2 Stations	32	25	Han	4.88	Brandonville	1.18
Wisconsin	Port Washington	94	15	Newald 4 N	29	24	Amery	9.74	Dodgeville 1 NE	1.54
Wyoming	Colony	105	13	Burgess Junction	14	8	Gillette 18 SW	4.05	Farson	.00

## CLIMATOLOGICAL DATA

METRIC UNITS

JUNE 1977

State and Station	Pressure		Temperature				Precipitation				Wind			No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	Station Q	mb	Average		Departure from normal	Highest	Date	Lowest	Date	Max 32° or above	Min 0° or lower	Average dew point	Average relative humidity			Total mm	Departure from normal mm	Greatest in 24 hours mm	No of days	Snow, ice pellets	Fastest mile (1.6 kilometers)	Direction	Date	Clear, 0-3	Partly cloudy 4-7	Cloudy 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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# CLIMATOLOGICAL DATA

METRIC UNITS

JUN 1979

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation					Wind				No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)													
		Station	Sea level	Average maximum	Average minimum	Average		Departure from normal	Highest	Date	Lowest	Date	Max 32.2 °C or above	Min 0 °C or lower	Average dew point	Average relative humidity	Total			mm	mm	With thunderstorms	No. of days	Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1.6 kilometers)			
COLORADO																																
ALAMOSA	2297			24.8	4.1	14.4	-0.9	30.6	28	-2.2	10	0	3	5.4	49	18	5	18	2	0	2.1	22	15.6	30	19	NE	29	14	3	3.7		
COLORADO SPRINGS	1779	813.8	1014.4	25.3	10.6	17.9	-0.2	32.2	13	2.8	10	1	0	5.4	49	40	-10	23	8	11	0	1.0	19	15.6	30	19	NE	29	14	3	3.0	
DENVER	1610	837.8	1013.0	26.6	10.9	18.8	-0.1	35.0	26	5.6	10	4	0	6.1	48	61	12	37	6	9	0	1.0	16	15.2	NE	29	14	8	4.0			
GRAND JUNCTION	1676	852.7	1011.9	30.1	13.3	21.7	-0.2	37.8	29	7.8	19	17	0	1.7	30	20	16	12	3	2	0	1.6	15	17.9	W	30	17	8	3.4	78		
PUEBLO	1428			29.6	11.3	20.5	-1.0	36.1	29	4.4	10	14	0	1.7	30	89	55	57	5	0	0	1.6	15	16.1	NE	28	14	11	3	3.9		
CONNECTICUT																																
BRIDGEPORT	2	1018.3	1018.8	23.2	15.3	19.2	-0.7	27.8	16	10.0	13	0	0	13.9	74	84	19	20	10	3	0	0.3	22	16.1	29	5	12	5	13	5.8	76	
HARTFORD	52	1011.5	1019.0	27.2	13.8	20.6	0.7	35.0	16	6.7	13	4	0	11.7	60	23	-67	12	5	3	0	0.3	22	15.1	NW	12	8	13	9	5.8		
DELAWARE																																
WILMINGTON	23	1015.9	1019.0	25.3	14.6	19.9	-1.9	29.4	23	8.3	12	0	0	13.9	70	102	20	29	11	4	0	0.9	18	8.9	31	5	5	10	15	6.7		
DIST. OF COLUMBIA																																
WASHINGTON DULLES	88	1006.8	1018.6	26.8	13.4	20.1	-1.6	31.1	9	5.0	14	0	0	13.6	79	118	26	41	13	7	0	0.6	19	10.3	21	30	5	13	12	6.3	65	
WASHINGTON NATIONAL	1	1016.3	1018.8	27.4	17.5	22.4	-1.2	31.7	10	12.8	25	0	0	16.7	71	76	-12	32	10	4	0	1.3	19	13.9	5	30	6	10	14	6.4	65	
FLORIDA																																
APALACHICOLA	6	1017.3	1017.8	31.3	20.8	26.1	-0.6	35.6	20	17.2	13	8	0	21.1	75	30	-105	22	3	8	0	0.4	12	8.9	E	14	11	15	4	4.5	85	
DAYTONA BEACH	9	1015.9	1017.5	29.9	21.9	25.9	-0.4	34.4	4	18.9	11	37	0	21.7	80	77	-91	12	8	0	0	1.6	16	13.0	9	5	11	14	8	3.2	78	
FORT MYERS	1	1015.9	1014.3	33.6	22.6	28.1	0.8	36.1	19	21.1	11	27	0	21.1	71	211	-15	104	7	21	0	1.0	10	8.0	13	28	7	17	9	4.0	78	
JACKSONVILLE	1	1016.9	1017.9	30.3	19.8	25.1	-1.2	33.0	19	13.9	13	0	0	20.6	79	150	-6	92	11	5	0	1.1	6	11.6	NE	25	4	17	9	6.0	83	
KEY WEST	1	1015.2	1015.8	31.8	26.3	29.1	0.4	33.3	28	24.4	29	15	0	23.9	73	74	-30	94	9	103	0	3.1	10	9.4	11	21	7	21	2	4.0	85	
MIAMI	2	1015.9	1016.3	30.9	24.6	27.7	0.5	34.4	4	21.1	12	4	0	21.1	70	103	-125	44	11	7	0	0	3.0	9	9.4	9	9	8	19	5	8.5	
ORLANDO/MCO INT'L	29	1013.5	1017.2	32.4	21.7	27.1	0.3	34.4	25	18.9	11	21	0	21.1	76	102	-70	53	10	101	0	0	1.3	5	10.3	5	16	6	19	5	3.2	85
PENSACOLA	34	1013.5	1017.8	31.9	21.8	26.9	-0.1	36.1	30	16.7	13	18	0	20.0	69	22	-134	11	10	10	0	1.4	14	9.4	35	11	10	17	3	4.6	81	
TALLAHASSEE	17	1013.2	1017.4	31.8	18.6	25.2	-1.4	35.6	20	10.6	13	18	0	19.4	73	63	-103	42	8	9	0	0	1.3	4	10.3	22	20	10	14	5	4.6	81
TAMPA	4	1016.9	1017.1	31.4	22.7	27.1	-0.1	33.9	15	19.4	12	7	0	22.8	79	58	-112	30	10	7	0	2.8	9	11.2	7	21	14	12	4	4.1	81	
WEST PALM BEACH	4	1015.9	1016.7	31.2	22.3	26.8	-0.2	33.3	15	19.4	12	7	0	21.7	75	161	-46	60	10	7	0	2.8	9	15.6	25	14	9	20	1	4	4.1	81
GEORGIA																																
ATHENS	244	989.5	1018.0	28.8	18.2	23.5	-1.4	33.9	19	12.8	12	4	0	17.2	72	64	-43	37	6	5	0	0.6	4	7.6	23	7	6	10	14	6.2	66	
ATLANTA	308	987.4	1017.9	29.1	17.7	23.8	-0.9	33.9	19	13.9	12	6	0	17.2	70	30	-53	28	7	5	0	0.8	6	9.8	30	24	9	17	13	6.2	66	
COLUMBIA	136	1006.1	1018.1	31.9	20.0	25.6	-0.4	35.0	19	14.4	13	11	0	18.3	68	31	-73	20	5	8	0	0	0.6	4	9.4	30	20	7	14	13	6.2	66
COLUMBUS	128	1005.1	1018.0	31.0	19.3	25.2	-1.3	34.1	19	13.3	13	11	0	17.8	68	64	-34	23	5	8	0	0	0.6	1	10.3	E	14	5	11	6.2	69	
ROME	194			29.6	17.3	23.4	-0.9	33.9	22	10.0	12	5	0	19.4	76	60	-35	15	9	13	0	0	0.6	4	12.5	NW	3	5	11	14	6.1	61
SAVANNAH	14	1016.6	1018.5	30.1	19.7	24.9	-1.3	36.1	19	15.6	11	12	0	19.4	76	187	-38	49	13	7	0	0	0.8	4	12.5	NW	3	5	11	14	6.1	61
HAWAII																																
HILO	8	1016.9	1018.1	27.4	19.4	23.4	-0.2	29.4	8	16.7	6	0	0	19.4	81	283	98	56	26	0	0	0	0.4	17	7.6	E	16	0	7	23	8.5	46
KOOLU	2	1017.6	1017.6	31.2	22.2	28.7	0.6	32.2	22	18.3	7	5	0	18.3	85	4	0	0	0	0	0	0	0.4	17	12.1	NE	24	1	17	12	6.8	72
MAHULU	31	1014.6	1017.1	30.4	21.2	25.8	0.8	32.2	16	16.7	6	1	0	20.0	75	2	-4	1	17	0	0	0	0.4	6	13.4	NE	11	5	17	6.0	63	
LIHUE	1	1013.2	1018.4	28.3	21.8	25.1	-0.2	30.0	1	16.7	7	0	0	20.0	75	60	21	13	17	0	0	0	0	6.2	6	10.3	NE	23	1	12	7.4	64
IDAHO																																
BOISE	84	915.0	1013.7	27.9	10.7	19.3	1.1	37.8	28	3.3	8	9	0	1.7	35	18	-22	4	3	1	0	1.7	32	15.2	NW	16	17	9	4	3.6	71	
LEWISTON	431			27.3	11.7	19.5	1.2	36.7	28	6.1	8	6	0	1.7	35	24	-29	17	4	3	0	0	1.7	32	15.2	NW	16	15	9	4	3.6	71
POCATELLO	158			25.4	7.6	16.5	-0.1	35.6	29	-0.6	8	9	1	1	35	24	-28	12	5	3	0	0	1.7	32	15.0	SW	6	16	8	9	4.0	81
ILLINOIS																																
CHICAGO O'HARE	96	991.5	1015.6	30.9	20.3	25.7	0.3	35.6	21	13.9	11	11	0	12.8	82	21	-90	9	5	3	0	0	0.7	19	13.0	NW	10	8	12	10	5.9	71
CHICAGO MIDWAY	188	993.8	1015.2	28.8	18.4	23.9	-0.6	33.9	8	8.9	25	1	0	12.8	85	18	-12	21	11	7	0	0	0.7	19	11.9	SE	20	6	11	11	4.1	73
CHICAGO	177	993.8	1015.2	28.8	18.4	23.9	-0.6	33.9	8	8.9	25	1	0	12.8	85	72	-40	36	11	10	0	0	0.7	19	11.9	SE	20	6	11	11	4.1	73
CHICAGO	199	992.6	1016.1	28.3	15.3	21.8	0.2	33.9	4	8.9	25	1	0	12.8	85	72	-40	36	11	10	0	0	0.7	19	11.9	SE	20	6	11	11	4.1	73
INDIANAPOLIS	221	999.5	1016.1	26.6	13.8	20.2	-0.2	32.2	20	6.1	25	1	0	12.8	85	421	-58	40	13	11	0	0	1.4	21	13.9	NW	10	8	10	12	5.7	74
ROCKFORD	178	994.2	1016.0	30.9	16.7	23.8	1.1	36.1	19	10.6	25	12	0	13.9	88	24	-82	11	18	4	0	0	2.1	21	14.8	NW	29	10	9	11	5.7	74
SPRINGFIELD	178	994.2	1016.0	30.9	16.7	23.8	1.1	36.1	19	10.6	25	12	0	13.9	88	24	-82	11	18	4	0	0	2.1	21	14.8	NW	29	10	9	11	5.7	74
INDIANA																																
EVANSVILLE	114	1003.1	1017.0	30.9	16.9	23.9	0.2	35.6	19	10.6	26	13	0	17.2	88	71	-20	28	11	7	0	0	1.5	22	12.5	SW	20	9	11	10	5.9	76

## METRIC UNITS

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## METRIC UNITS

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## CLIMATOLOGICAL DATA

METRIC UNITS

JUNE 1979

State and Station	Elevation (feet)	Pressure		Temperature				Precipitation				Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station	Sea level	Average		Departure from normal	Highest	Lowest	Date	No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours				25 mm or more	With thunderstorms	Snow, ice pellets																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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## CLIMATOLOGICAL DATA

METRIC UNITS

JUNE 1979

State and Station	Elevation (ground)	Pressure		Temperature				Precipitation				Wind				No of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Station Q	Sea level	Average		Departure from normal	Highest	Lowest	Date	Max 32.2 °C or above	Min. 0 °C or lower	Average dew point	Total	mm	mm			Greatest in 24 hours	No. of days 25 mm. or more	With thunderstorms	Snow, ice pellets	Total	mm	mm	m/s	Speed	Direction	Fastest mile (1.6 kilometers)	Date	Resultant speed	Resultant direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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## CLIMATOLOGICAL DATA

METRIC UNITS

JUN 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days (sunrise to sunset)		Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Station	Sea level	Average maximum	Average minimum	Average		Departure from normal	Highest	Lowest	Date		Max 32° or above	Min. 0° or lower	Average dew point	Average relative humidity	Total	mm	Departure from normal	Greatest in 24 hours	No. of days with thunderstorms	Snow, ice pellets	Fastest mile (1.6 kilometers)				Direction	Speed	Resultant speed	Resultant direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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# MONTHLY AND SEASONAL HEATING DEGREE DAYS

(Base 65°F)

1978-1979

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
<b>ALABAMA</b>														
BIRMINGHAM U	0	0	0	154	213	377	455	597	300	92	25	0		2844
BIRMINGHAM	0	0	0	191	223	370	439	584	303	33	0	0		3302
HUNTSVILLE	0	0	0	20	53	355	613	401	152	8	4	0	3269	1684
MOBILE	0	0	0	72	109	431	681	465	194	39	9	0	2000	2269
MONTGOMERY	0	0	0											
<b>ALASKA</b>														
ANCHORAGE	186	160	400	792	1153	1344	1321	1515	1029	781	454	268	9403	10911
ANNETTE	213	196	333	519	780	947	1055	930	728	621	532	373	7227	7053
BARROW	772	874	936	1793	1786	2448	2091	2390	2534	1978	1395	970	19967	23265
BARTER ISLAND	749	867	867	1742	1726	2268	2009	2402	2646	1897	1242	925	19334	19994
BETHEL	334	293	605	1151	1223	1338	1347	1962	1447	998	634	508	11840	13203
BETHEL	94	257	374	1521	1696	2144	2173	2574	1878	1280	521	271	14983	15923
BIG DELTA	83	216	355	1222	1579	1914	1991	2375	1520	929	420	244	13048	13698
COLD BAY	471	325	481	768	799	917	921	1020	910	720	681	425	8416	9865
FAIRBANKS	05	176	342	1285	1689	1912	2260	2333	1638	1018	483	220	13802	14345
GULKANA			359	995	1624	2009	2140	2324	1362			278		
HOMER	366	310	522	761	984	1088	1056	1375	987	792	651	481	9373	10364
JUNEAU	298	262	427	612	1037	1134	1370	1505	904	712	528	378	9167	9007
KING SALMON	326	237	314	876	1042	1141	1076	1648	1069	754	544	380	9607	11582
KODIAK	383	239	417	640	765	902	829	1055	837	620	586	344	7617	8800
KOTZEBUE	199	264	350	1379	1470	1953	1639	2093	1772	1380	969	485	14153	16039
MC GRATH	176	224	385	1291	1520	1720	2038	2383	1574	1040	507	367	13425	14487
NOME	321	323	543	1171	1225	1367	1387	1847	1526	1176	715	522	12323	14325
ST. PAUL ISLAND	564	496	518	792	802	1011	946	976	1065	860	747	548	9325	11119
TALKEETNA	238	226	315	952	1328	1364	1336	1649	1148	894	553	319	10922	11708
UNALAKLEET	236	237												
VALDEZ	374	294	491	820	1059	1244	1229	1379	1020	792	575	402	9679	10545
YAKUTAT	356	306	487	657	986	1100	1294	1350	933	834	624	458	9387	9533
<b>ARIZONA</b>														
FLAGSTAFF	33	73	227	465	907	1254	1307	1089	1005	722	524	219	7825	7322
PHOENIX	0	0	0	1	148	405	455	254	143	30	0	0	1436	1552
TUCSON	0	0	0	15	213	470	511	311	260	76	20	0	1876	1752
WINSLON	0	0	37	180	573	1176	1102	757	646	314	156	27	4968	4733
YUMA	0	0	0	0	136	374	399	174	84	1	0	0	1168	1005
<b>ARKANSAS</b>														
FORT SMITH	0	0	0	133	359	771	1215	869	393	175	54	0	3969	3336
LITTLE ROCK	0	0	0	118	321	667	1083	732	214	110	13	0	3358	3354
NO. LITTLE ROCK	0	0	0	126	316	707	1158	794	368	149	35	0	3653	3088
<b>CALIFORNIA</b>														
BAKERSFIELD	0	0	0	9	236	578	410	352	211	87	8	0	1891	2185
BISHOP	0	1	93	169	653	906	931	514	291	97	18	0	4400	4313
BLUE CANYON	55	107	247	198	701	872	954	833	720	671	303	0		
EUREKA U	274	241	215	307	503	667	562	467	459	412	374	323	4804	4679
FRESNO	0	0	6	30	382	682	549	372	234	96	34	0	2385	2650
LONG BEACH	0	0	0	4	201	376	344	268	177	41	30	1	1442	1606
LOS ANGELES	1	0	0	5	179	326	316	295	237	137	74	1	1571	1819
LOS ANGELES U	0	0	0	7	209	361	354	274	226	80	46	6	1563	1245
MT. SHASTA R	48	115	298	348	840	1067	1051	842	694	623	333	144	6403	5890
OAKLAND	49	21	12	104	349	594	491	387	294	244	117	104	2766	2909
RED BLUFF	0	0	1	17	353	615	541	418	248	172	41	0	2406	2688
SACRAMENTO	0	0	11	51	449	715	606	446	313	236	57	2	2886	2843
SANBORN R	20	23	141	108	598			717	657	487				
SAN DIEGO	0	0	0	0	102	297	244	219	133	45	20	6	1086	1507
SAN FRANCISCO	111	65	32	143	371	581	536	406	319	277	148	132	3121	3042
SAN FRANCISCO U	196	137	43	138	268	471	431	332	281	250	185	197	2929	3080
SANTA MARIA	112	45	54	139	379	544	505	442	372	326	189	130	3237	3053
STOCKTON	0	0	3	33	398	713	605	384	262	126	27	0	2551	2806
<b>COLORADO</b>														
ALAMOSA	18	141	278	632	966	1762	1827	1518	1069	704	438	203	9556	8609
COLORADO SPRINGS	3	44	119	400	848	1329	1484	906	825	494	336	97	6885	6473
DENVER	0	20	96	366	811	1245	1450	854	751	473	313	81	6460	6716
GRAND JUNCTION	0	6	95	313	737	1510	1493	1154	732	377	192	27	6846	5605
PUEBLO	0	6	59	347	778	1264	1509	849	674	391	247	48	6172	5394
<b>CONNECTICUT</b>														
BRIDGEPORT	4	0	92	290	524	889	1062	1126	675	460	114	23	5259	5461
HARTFORD	8	15	209	489	790	1102	1184	1310	730	479	81	26	6418	6350
<b>DELAWARE</b>														
WILMINGTON	6	0	60	337	542	854	1037	1197	605	424	89	28	5179	4940
<b>DIST. OF COLUMBIA</b>														
WASHINGTON DULLES	0	0	58	349	539	824	1040	1163	578	383	115	43	5092	5010
WASHINGTON NATIONAL	0	0	9	192	378	671	918	1019	425	273	30	0	3915	4211
<b>FLORIDA</b>														
APALACHICOLA U	0	0	0	24	35	292	325	394	204	13	4	0	1491	1361
DAYTONA BEACH	0	0	0	0	4	71	279	244	79	5	5	0	682	697
FORT MYERS	0	0	0	0	0	19	127	100	13	0	0	0	259	457
JACKSONVILLE	0	0	0	46	68	324	325	371	160	13	3	0	1510	1327
KEY WEST	0	0	0	0	0	0	17	22	0	0	0	0	39	64
LAKELAND U	0	0												
MIAMI	0	0	0	0	0	1	84	82	13	0	0	0	180	206
ORLANDO	0	0	0	0	0	56	230	214	71	0	0	0	571	733
PENSACOLA	0	0	0	17	23	322	592	390	168	6	4	0	1522	1578
TALLAHASSEE	0	0	0	41	76	364	581	424	217	28	13	0	1744	1503
TAMPA	0	0	0	0	2	75	245	190	53	0	0	0	565	718
WEST PALM BEACH	0	0	0	0	0	2	124	118	23	0	0	0	267	299
<b>GEORGIA</b>														
ATHENS	0	0	1	132	218	581	804	635	289	92	22	0	2774	2975
ATLANTA	0	0	0	112	194	580	853	646	279	97	16	0	2777	3095
AUGUSTA	0	0	0	103	184	531	723	582	265	79	15	2	2484	2547
COLUMBUS	0	0	0	57	104	468	693	527	219	34	7	0	2109	2378
Macon	0	0	0	70	130	467	675	541	226	62	7	0	2178	2240
ROME	0	0	0	154	259	638	897	676	360	127	31	0	3142	3342
SAVANNAH	0	0	0	45	53	378	602	448	181	17	1	0	1725	1952

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State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
<b>IDAHO</b>														
BOISE	5	38	173	370	841	1171	1503	855	668	481	241	72	6418	5833
LEWISTON	4	22	139	390	890	1109	1485	808	582	448	190	61	6130	5464
POCATELLO	10	59	241	473	990	1387	1678	1034	887	623	320	155	7857	7063
<b>ILLINOIS</b>														
CAIRO	0	0	0	193	387	801	1247	965	515	225	61	5	4394	3833
CHICAGO	1	4	59	418	718	1206	1622	1360	879	580	233	25	7110	6497
CHICAGO MIDWAY	4	1	50	410	671	1199	1628	1345	910	608	216	28	7068	6127
MOBILE	1	4	59	415	707	1305	1820	1445	884	521	247	12	7445	6395
PEORIA	0	4	49	390	704	1174	1722	1403	833	510	194	15	6993	6098
ROCKFORD	2	7	66	461	806	1333	1771	1458	1026	658	245	27	7860	6845
SPRINGFIELD	0	0	36	349	591	1035	1627	1336	758	435	119	0	6286	5558
<b>INDIANA</b>														
EVANSVILLE	0	0	10	323	473	865	1360	1125	559	324	106	0	5147	4624
FORT WAYNE	1	5	55	431	686	1050	1466	1401	731	342	198	26	6592	6209
INDIANAPOLIS	0	0	36	377	571	944	1433	1288	665	455	170	5	5964	5377
SOUTH BEND	5	4	57	399	656	1095	1453	1256	795	560	241	22	6643	6462
<b>IOWA</b>														
BURLINGTON	0	5	53	391	731	1210	1692	1377	854	515	162	5	6995	6149
DES MOINES	0	0	48	383	776	1293	1779	1433	912	532	163	15	7334	6710
DES MOINES	3	12	90	505	869	1414	1877	1511	1053	632	247	25	8238	7277
SIUX CITY	1	8	63	448	948	1331	1895	1560	1038	546	255	31	8324	6953
WATERLOO	2	9	78	468	914	1404	1903	1547	1024	613	238	20	8220	7415
<b>KANSAS</b>														
CONCORDIA	0	0	41	288	719	1132	1615	1294	720	411	164	19	6403	5623
ODDGE CITY	0	2	41	228	667	1054	1549	1013	615	343	175	25	5712	5046
GOUDLAND	0	18	63	375	876	1229	1670	936	710	424	269	58	6428	6119
TOPEKA	0	0	34	319	655	1078	1643	1277	693	401	129	9	6238	5243
WICHITA	0	0	18	210	598	1016	1491	1143	560	333	104	3	5476	4687
<b>KENTUCKY</b>														
COVINGTON	0	0	21	381	552	891	1348	1216	563	425	179	15	5591	5070
LEXINGTON	0	0	20	348	492	834	1277	1061	522	337	110	15	5016	4729
LOUISVILLE	0	0	4	293	442	765	1246	1030	514	301	94	5	4694	4640
<b>LOUISIANA</b>														
BATON ROUGE	0	0	0	32	104	427	687	418	178	19	5	0	1870	1670
LAKE CHARLES	0	0	0	26	98	377	636	406	151	19	0	0	1713	1498
NEW ORLEANS	0	0	0	16	39	324	586	347	128	8	2	0	1450	1405
SHREVEPORT	0	0	0	57	181	528	849	517	216	50	11	0	2409	2167
<b>MAINE</b>														
CARIBOU	59	86	434	717	1114	1503	1934	1527	1018	708	326	104	9124	9632
PORTLAND	39	92	230	513	832	1201	1272	1380	905	677	311	97	7509	7498
<b>MARYLAND</b>														
BALTIMORE	0	0	33	280	483	763	984	1100	520	354	75	6	4598	4729
<b>MASSACHUSETTS</b>														
BLUE HILL LBS K	19	19	196	447	717	1036	1134	1296	790	573	277	66	6500	6335
BOSTON	11	11	150	381	635	916	1002	1169	691	481	149	19	5615	5621
WORCESTER	33	38	229	511	767	1116	1225	1354	824	601	243	80	7021	6848
<b>MICHIGAN</b>														
ALPENA	63	48	212	577	862	1270	1580	1576	1038	712	443	164	8545	8918
DETROIT	6	0	57	413	688	1036	1390	1340	841	621	273	46	6711	6228
DETROIT METRO	17	0	73	452	728	1112	1432	1355	843	604	291	55	6962	6419
FLINT	17	8	89	449	723	1187	1516	1558	829	608	291	64	7239	7041
GRAND RAPIDS	19	22	124	543	810	1182	1477	1393	863	607	284	42	7350	6701
HOUGHTON LAKE	79	46	220	636	869	1333	1655	1530	1053	742	396	135	8694	8347
LANSING	24	13	105	507	751	1181	1509	1452	834	608	289	58	7331	6904
MARQUETTE	64	57	220	554	918	1385	1709	1408	969	708	340	84	7683	6890
MUSKEGON	29	15	125	519	815	1190	1481	1408	969	708	340	84	7683	6890
SAULT STE MARIE	112	96	282	645	989	1453	1733	1673	1171	835	477	237	9703	9193
<b>MINNESOTA</b>														
DULUTH	71	99	262	615	1159	1699	1999	1679	1293	910	549	172	10507	9756
INTERNATIONAL FALLS	95	119	299	661	1329	1992	2787	1837	1402	923	580	177	11701	10547
MINNEAPOLIS	5	7	89	464	908	1338	1914	1537	1112	623	307	38	8602	8159
ROCHESTER	11	20	142	577	1059	1624	2064	1658	1183	680	319	31	9378	8227
ST CLOUD	31	26	175	579	1113	1736	2093	1677	1260	767	438	87	9984	8868
<b>MISSISSIPPI</b>														
JACKSON	0	0	0	98	164	519	821	531	262	69	20	0	2484	2300
MERIDIAN	0	0	0	110	178	547	830	536	261	69	15	0	2546	2388
<b>MISSOURI</b>														
COLUMBIA REGIONAL	0	0	21	280	552	949	1315	1169	633	360	94	0	5573	5078
KANSAS CITY	0	0	24	272	618	1050	1624	1230	698	400	115	8	6040	5397
ST JOSEPH	0	2	35	318	663	1090	1680	1354	758	482	170	9	6561	5440
ST LOUIS	0	0	24	292	528	923	1496	1167	644	364	80	0	5918	4730
SPRINGFIELD	0	0	19	268	535	933	1463	1083	606	342	132	14	5365	4970
<b>MONTANA</b>														
BILLINGS	41	45	204	487	1208	1509	1771	1286	887	636	390	71	8495	7265
GLASGOW	47	70	233	601	1306	1725	2145	1780	1283	853	455	86	10579	8969
GREAT FALLS	54	47	236	496	1228	1473	1804	1492	931	722	417	111	8825	7652
HAYDEN	40	48	218	544	1317	1625	2098	1728	1024	733	392	72	9839	8687
HELENA	32	60	244	564	1263	1540	1979	1250	930	665	359	128	9014	8190
KALISPELL	60	199	331	685	1167	1567	2023	1168	964	662	404	152	9322	8554
MILES CITY	14	24	167	502	1263	1614	2010	1594	1086	705	368	62	9409	7889
MISSOULA	67	110	308	604	1141	1515	1841	1099	893	625	389	125	8718	7931
<b>NEBRASKA</b>														
GRAND ISLAND	0	3	64	400	886	1438	1777	1431	866	492	258	38	7653	6420
LINCOLN	0	5	62	392	848	1315	1787	1454	816	463	197	16	7355	6218
NORFOLK	1	9	49	434	900	1476	1836	1506	988	533	248	33	8013	6981
NORTH PLATTE	5	24	99	488	982	1560	1829	1335	867	491	259	55	7989	6743
OMAHA (DUPPEY)	0	0	39	350	754	1255	1676	1333	775	451	196	12	6801	6049
OMAHA (NORTH)	0	3	52	385	837	1358	1767	1435	921	514	199	24	7495	6601
SCOTT'S BLF	2	20	99	412	930	1425	1890	1029	737	447	288	50	7129	6774
VALENTINE	4	32	109	515	1053	1622	1888	1446	886	574	376	67	8622	7300



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State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Normals July-June
NEVADA														
ELKO	23	47	267	439	888	1277	1306	889	775	553	265	86	6815	7483
ELY	43	103	336	490	1047	1361	1479	1072	933	675	400	179	8118	7814
LAS VEGAS	0	0	1	2	324	676	737	458	270	66	18	0	2552	2601
RENU	21	62	234	447	826	1236	1113	781	709	536	247	91	6203	6022
WINNEHUCCA	21	53	241	442	907	1202	1221	809	710	532	205	63	6406	6629
NEW HAMPSHIRE														
CONCORD	45	34	275	563	882	1304	1284	1392	841	617	280	99	7616	7360
MT WASHINGTON OBS	497	493	811	1128	1355	1791	1782	1849	1440	1229	841	593	13809	13878
NEW JERSEY														
ATLANTIC CITY	6	0	116	365	512	831	1032	1208	623	406	110	39	5248	4946
ATLANTIC CITY J	6	0	62	297	497	791	979	1045	666	427	173	22	4965	4693
NEWARK	6	0	66	239	481	830	1001	1155	577	386	88	11	4823	5034
TRENTON J	7	0	79	300	521	824	1013	1155	568	408	98	19	4992	4947
NEW MEXICO														
ALBUQUERQUE	0	0	20	167	521	945	988	665	509	241	100	12	4168	4292
CLAYTON	0	8	68	291	678	1100	1286	806	660	416	252	62	5627	5207
ROSWELL	0	0	55	174	468	856	929	591	444	161	51	2	3731	3697
NEW YORK														
ALBANY	43	19	256	503	784	1119	1324	1414	803	579	188	63	7095	6888
BINGHAMTON	53	7	208	533	765	1143	1451	1437	832	667	325	127	7448	7285
BUFFALO	14	3	154	472	732	1067	1371	1400	823	619	285	65	7005	6927
NEW YORK U	8	0	75	311	510	802	969	1100	554	369	55	14	4764	4848
NEW YORK KENNEDY	2	0	62	237	481	791	978	1115	603	397	88	19	4773	5184
NEW YORK LA GUARDIA	5	0	72	287	498	831	1031	1173	637	466	94	15	5089	4909
ROCHESTER	5	1	136	428	711	1077	1342	1432	813	626	310	79	6960	6719
SYRACUSE	10	1	184	470	735	1062	1315	1457	796	591	242	74	6937	6678
NORTH CAROLINA														
ASHEVILLE	0	0	12	283	390	741	951	810	457	268	71	18	4001	4237
CAPE HATTERAS R	0	0	0	90	123	426	601	663	439	198	32	0	2572	2731
CHARLOTTE	0	0	7	155	255	620	873	790	350	163	30	4	3207	3218
GREENSBORO	0	0	16	238	381	700	921	896	440	198	52	8	3850	3825
RALPHIGH	0	0	7	184	292	627	793	792	398	183	43	8	3327	3514
WILMINGTON	0	0	0	91	154	489	653	666	346	60	5	0	2404	2433
NORTH DAKOTA														
BISMARCK	18	35	217	585	1263	1679	2084	1837	1320	891	463	81	10473	9044
FARGO	15	39	179	571	1262	1788	2147	1863	1377	861	497	64	10623	9271
WILLISTON	21	39	213	569	1322	1756	2085	1774	1294	906	495	76	10350	9161
OHIO														
AKRON	9	0	58	456	670	997	1397	1348	712	550	288	62	6547	6224
CINCINNATI ABBE DB	0	0	21	356	526	841	1303	1157	594	402	138	10	5348	4844
CLEVELAND	7	2	43	362	620	965	1328	1281	680	552	290	60	6190	6154
COLUMBUS	0	0	38	411	610	943	1346	1270	637	449	185	18	5907	5702
DAYTON	1	11	47	396	597	942	1372	1281	634	445	166	15	5907	5641
HANSFIELD	12	6	63	449	686	1044	1433	1253	744	557	290	54	6691	5818
TOLDO	11	11	74	466	732	1076	1461	1390	808	577	259	42	6907	6381
YOUNGSTOWN	21	2	82	456	680	1004	1363	1332	781	568	310	74	6683	6426
OKLAHOMA														
OKLAHOMA CITY	0	0	2	89	437	866	1221	932	434	217	81	0	4279	3695
TULSA	0	0	0	121	406	834	1293	972	391	164	47	0	4228	3680
OREGON														
ASTORIA	125	110	202	324	693	843	910	641	543	467	338	243	5439	5295
BURNS U	24	122	310	443	961	1335	1517	941	792	618	350	150	7573	7212
EUGENE	57	48	165	366	763	919	1029	614	496	432	288	159	5331	4739
MEDFORD	4	15	180	244	768	973	905	639	483	410	223	58	4902	4920
PENULTON	7	41	146	403	936	1094	1333	757	582	432	184	62	6177	5240
PORTLAND	27	26	134	312	772	915	1058	615	434	351	162	57	4865	4792
SALEM	17	20	129	328	763	928	1038	619	486	430	249	121	5128	4852
SEXTON SUMMIT R	135	189	377	283	784	1012	908	849	643	657	416	243	6493	6430
PENNSYLVANIA														
ALLENTOWN	9	8	94	368	614	971	1142	1241	623	460	125	29	5886	5827
ERIE	15	2	129	481	723	1046	1406	1424	874	678	369	106	7249	6851
HARRISBURG	14	0	48	321	544	876	1106	1182	611	435	123	26	5286	5224
PHILADELPHIA	5	0	41	296	507	811	999	1170	556	378	38	17	4818	4865
PITTSBURGH	4	3	80	485	656	993	1346	1311	671	458	219	38	6264	5930
PITTSBURGH U	10	1	49	387	577	903	1258	1214	626	438	190	23	5676	5278
SCRANTON	38	2	153	436	728	1103	1257	1370	747	552	221	66	6673	6277
WILLIAMSPORT	9	0	76	381	633	998	1179	1264	696	497	167	40	5940	5981
RHODE ISLAND														
BLOCK ISLAND	14	5	125	391	550	827	985	1196	769	583	235	68	5690	5771
PROVIDENCE	8	8	180	412	673	970	1075	1261	755	540	162	52	6096	5972
SOUTH CAROLINA														
CHARLESTON	0	0	0	57	83	399	602	505	241	70	2	0	1959	2146
CHARLESTON U	0	0	0	28	53	320	627	527	259	38	6	0	1858	1904
COLUMBIA	0	0	0	89	162	492	664	613	294	107	2	2	2450	2598
GRNVILLE-SPRTRBGR	0	0	6	152	276	658	851	715	336	129	15	3	3141	3163
SOUTH DAKOTA														
ABERDEEN	13	23	142	540	1221	1678	2051	1750	1245	727	389	68	9847	8617
MURDOCK	12	27	132	539	1070	1560	2006	1647	1130	668	374	35	9200	8055
RAPID CITY	17	40	111	443	1068	1480	1781	1348	910	614	362	82	8256	7324
STOUC FALLS	11	18	104	525	1004	1554	1960	1607	1134	622	321	40	8900	7938
TENNESSEE														
BRISTOL	0	0	0	268	411	786	1065	920	511	283	88	11	4343	4306
CHATTANOOGA	0	0	0	192	299	637	962	725	390	152	42	0	3399	3505
KNOXVILLE	0	0	0	210	310	681	985	786	376	167	46	0	3561	3478
MEMPHIS	0	0	0	116	230	643	1049	734	345	121	23	0	3261	3227
NASHVILLE	0	0	1	240	338	695	1088	877	449	213	57	0	3958	3696
OAK RIDGE	0	0	0	281	393	780	1043	826	462	230	86	2	4103	3944

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<b>TEXAS</b>														
ABILENE	0	0	5	54	308	667	906	567	272	84	55	0	2920	2610
AMARILLO	0	0	33	197	574	992	1736	697	561	519	144	30	4783	4183
AUSTIN	0	0	0	5	186	475	754	460	144	37	10	0	2071	1737
BROWNSVILLE	0	0	0	0	35	152	305	203	41	0	0	0	736	650
CORPUS CHRISTI	0	0	0	1	57	236	445	256	38	1	0	0	1034	930
DALLAS FT. WORTH	0	0	0	27	247	578	911	655	261	78	20	0	2766	2362
DEL RIO	0	0	1	8	147	426	639	263	125	8	0	0	1717	1543
EL PASO	0	0	16	106	272	625	735	494	362	118	26	1	2755	2678
GALVESTON	0	0	0	0	72	258	550	361	120	12	2	0	1375	1234
HOUSTON INTERCON	0	0	0	22	111	393	646	376	135	23	2	0	1709	1434
LUBBOCK	0	0	31	129	447	827	1023	640	368	134	45	9	3654	3553
MIDLAND	0	0	36	138	374	689	893	546	297	106	34	5	3116	2621
PORT ARTHUR	0	0	0	4	75	296	591	260	125	12	0	0	1463	1518
SAN ANGELO	0	0	3	74	294	642	886	510	251	60	34	0	2754	2240
SAN ANTONIO	0	0	0	12	152	413	657	456	109	20	4	0	1723	1570
VICTORIA	0	0	0	3	121	349	591	352	79	15	6	0	1514	1227
WACO	0	0	0	23	256	573	880	570	217	59	30	0	2608	2058
WICHITA FALLS	0	0	1	75	364	758	1056	750	343	130	47	0	3525	2904
<b>UTAH</b>														
MILFORD	1	21	206	375	920	1288	1409	993	800	931	284	101	6929	6412
SALT LAKE CITY	0	12	144	284	714	1178	1327	902	666	414	196	57	5894	5983
<b>VERMONT</b>														
BURLINGTON	49	98	295	571	897	1227	1452	1010	866	641	224	90	7960	7876
<b>VIRGINIA</b>														
LYNCHBURG	0	0	25	289	439	777	1018	1033	489	265	83	11	4429	4233
NORFOLK	0	0	3	162	268	614	787	899	499	213	52	5	3482	3486
RICHMOND	0	0	16	214	366	694	876	1011	439	218	44	4	3882	3839
ROANOKE	0	0	29	335	461	784	1037	992	512	279	88	15	4532	4307
WALLOPS ISLAND	0	0	21	230	373	720	889	1004	621	347	77	7	4289	4240
<b>WASHINGTON</b>														
OLYMPIA	53	78	240	442	803	952	1048	683	536	454	309	188	5788	5530
QUILLAYUTE	170	194	266	404	732	892	913	703	600	526	383	294	6037	5951
SEATTLE	45	45	170	310	685	822	888	690	479	411	215	118	4816	4727
SEATTLE-TACOMA	44	42	180	324	706	844	937	630	479	420	235	96	4839	5185
SPokane	37	97	252	562	1083	1424	1684	1011	756	577	313	134	7930	6835
STAMPEDE PASS R.	285	343	563	633	1101	1336	1494	1080	928	640	624	462	9687	9400
WALLA WALLA U.	5	17	83	322	863	1007	1436	993	517	345	119	41	5448	4835
YAKIMA	6	53	184	470	975	1159	1549	901	641	456	178	72	6640	6009
<b>WEST VIRGINIA</b>														
BECKLEY	14	3	58	411	521	864	1213	1070	597	389	173	69	5384	5615
CHARLESTON	0	0	18	344	462	797	1137	1031	456	308	125	19	4697	4590
ELKINS	13	6	75	534	617	961	1213	1187	680	467	231	83	6067	5975
HUNTINGTON	0	0	15	334	504	815	1194	1014	484	292	110	12	4774	4624
PARKERSBURG U.	0	0	25	366	552	863	1226	1128	579	380	192	21	5292	4817
<b>WISCONSIN</b>														
GREEN BAY	35	18	152	549	953	1442	1830	1564	1117	691	389	70	8810	8098
LA CROSSE	6	0	78	427	871	1388	1828	1446	892	569	239	29	7893	7417
MADISON	19	22	130	543	940	1349	1800	1489	1013	671	283	52	8310	7730
MILWAUKEE	21	5	76	473	796	1273	1654	1291	980	681	322	91	7763	7444
<b>WYOMING</b>														
CASPER	17	60	212	522	1137	1402	1738	1153	910	631	479	151	8612	7955
CHEYENNE	28	73	200	523	937	1358	1471	953	893	597	459	139	7611	7255
LANDER	26	54	226	519	1321	1730	1974	1248	962	620	413	137	9232	7869
SHERIDAN	45	75	232	523	1233	1623	1911	1376	979	727	447	154	9329	7708



# COOLING DEGREE DAYS

(Base 65°F.)

JUNE 1979

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM U	317	544	785	HIL	280	1354	1321	GRAND ISLAND	211	247	265	CHARLESTON	335	658	730
BIRMINGHAM	306	540	785	HONOLULU	458	1787	1758	LINCOLN	235	284	313	CHARLESTON U	316	571	833
HUNTSVILLE	280	418	604	KAHULUI	410	1611	1467	NORFOLK	212	253	232	COLUMBIA	253	459	733
MOBILE	448	803	989	LIMOU	374	1630	1533	NORTH PLATTE	156	183	191	GRNVILLE-SPRNGBRG	215	415	520
MONTGOMERY	346	652	801					OMAHA (EPPLEY)	249	321	332				
ALASKA				IDAHO				OMAHA (NORTH)	206	254	254	SOUTH DAKOTA			
ANCHORAGE	0	0	0	BOISE	129	156	104	SCOTTSDALE	163	190	134	ABERDEEN	83	94	120
ANNETTE	0	0	0	LEWISTON	131	140	102	VALENTINE	136	140	152	HURON	162	175	160
BARKUK	0	0	0	POCATELLO	64	64	49					RAPID CITY	99	118	125
BARTER ISLAND	0	0	0					NEVADA				SIOUX FALLS	131	159	175
BETHLE	0	0	0	ILLINOIS				ELKO	120	129	28				
BETTES	0	0	0	CAIRO U	402	547	603	ELY	35	35	22	TENNESSEE			
BIG DELTA	0	0	0	CHICAGO MAKE	164	227	173	LAS VEGAS	675	1075	891	ARISTOT	113	173	335
COLU BAY	0	0	0	CHICAGO MIDWAY	165	217	244	PEND	63	72	46	CHATTANOOGA	279	410	537
FLIMMERS	0	0	0	DOLE	205	289	257	WINNEMUCCA	114	143	61	KNOXVILLE	242	388	523
GULFANA	0	0	0	DEWIA	206	268	287					MEMPHIS	394	685	692
HOMER	0	0	0	DOCKFORD	134	190	190	NEW HAMPSHIRE				NASHVILLE	264	383	549
JUNEAU	0	0	0	SPOKINGFIELD	305	400	337	CULCUM	69	85	57	JAX RIDGE	202	283	444
KING SALMON	0	0	0					MT WASHINGTON OBS	0	0	0				
KODIAK	0	0	0	INDIANA				NEW JERSEY				TEXAS			
KOTZEBE	0	0	0	EVANSVILLE	310	388	438	ATLANTIC CITY	103	158	193	ABILENE	428	733	838
MC GRATH	0	0	0	FORT WAYNE	156	218	204	ATLANTIC CITY U	74	79	148	AMARILLO	210	294	417
NOME	0	0	0	INDIANAPOLIS	197	261	297	NEWARK	167	208	244	AUSTIN	449	805	1042
ST. PAUL ISLAND	0	0	0	SOUTH BEND	181	231	183	NEWARK	131	176	239	BRANESVILLE	517	1510	1632
TALKEETNA	0	0	0					NEW YORK				COPAS CHASTI	907	1367	1399
UNALASKA	0	0	0	IDAHO				NEW YORK U				DALLAS FT WORTH	489	745	823
VALDEZ	0	0	0	BURLINGTON	212	277	284	NEW MEXICO				DEL RIO	444	1031	1332
YAKUTAT	0	0	0	DES MOINES	194	242	250	ALBUQUERQUE	269	341	364	EL PASO	414	688	744
				DUBUQUE	106	142	154	CLAYTON	145	152	181	GALVESTON	488	909	1083
ARIZONA				SIOUX CITY	186	222	261	PUSWELL	311	479	514	HUJSTON INTERCON	454	939	1070
FLUSTAFF	70	10	14	WATERLOO	153	188	181					LUBBOCK	371	598	550
PHOENIX	741	1354	1319					NEW YORK	99	138	141	MIDLAND	383	647	771
TUCSON	551	902	905	KANSAS				ALBANY	47	70	82	POINT ARTHUR	464	945	1027
WINSTON	213	245	279	CONCORDIA	261	306	344	RINGHAMTON	118	164	93	SAN ANGELO	394	753	978
YUMA	724	1452	1368	HOBBS CITY	292	363	380	RUFFALO	149	224	256	SAN ANTONIO	482	1014	1114
				GOULAND	176	208	205	NEW YORK U	83	109	171	VICTORIA	476	1046	1176
ARKANSAS				TOPEKA	237	324	393	NEW YORK KENNEDY	138	179	245	WACU	420	686	971
FORT SMITH	307	460	428	WICHITA	294	394	484	NEW YORK LA GUARDIA	121	174	125	WICHITA FALLS	444	721	841
LITTLE ROCK	396	606	614					RUCHESTER	121	174	125				
MO. LITTLE ROCK	329	506	630	KENTUCKY				KYRACUSE	179	141	121	UTAH			
CALIFORNIA				COVINGTON	154	202	317					MILFORD	89	93	98
BAKERSFIELD	570	873	810	LEXINGTON	199	246	304	NORTH CAROLINA				SALT LAKE CITY	214	270	154
BISHOP	187	257	254	LOUISVILLE	279	367	376	ASHEVILLE	141	197	248				
BLUE CANYON	0	0	0					CAPE MATTERAS R	203	349	409	VERMONT			
EUREKA U	395	654	642	LOUISIANA				CHARLOTTE	208	342	513	BURLINGTON	106	137	84
FRESNO	220	316	154	BATON ROUGE	430	855	983	GREENSBURG	159	286	428				
LOS BEACH	133	177	94	LAKE CHARLES	444	872	1034	RALEIGH	159	298	432	VIRGINIA			
LOS ANGELES U	209	307	324	NEW ORLEANS	491	1073	1034	WILMINGTON	298	603	451	LYNCHBURG	143	220	331
MT SHASTA R	19	21	34	SUMMERPORT	305	766	874					NORFOLK	171	307	409
OAKLAND	29	42	21					NORTH DAKOTA	67	73	97	RICHMOND	188	351	405
RED BLIFF	401	653	615	MAINE				RISMARCK	83	95	73	ROANOKE	150	223	298
SACKAMENTO	214	381	300	CARIBOU	50	58	9	FARGO	83	95	73	WALLOPS ISLAND	124	151	256
SAN DIEGO	169	231	118	PORTLAND	34	49	22	HILLISTON							
SAN FRANCISCO	19	30	18	MARYLAND								WASHINGTON	0	6	14
SAN FRANCISCO U	13	24	8	BALTIMORE	183	274	298	OHIO				OLYMPIA	0	0	0
SANTA MARIA	14	22	8					AKRON	106	147	168	QUILLAYUTE	0	0	0
STOCKTON	309	511	714	MASSACHUSETTS				CINCINNATI ABBE OB	173	250	367	SEATTLE	12	13	28
COLORADO				ALIVE HILL OBS R	56	92	70	CLEVELAND	122	170	164	SEATTLE-TACOMA	27	29	11
ALAMOSA	0	0	0	HOSTON	124	157	137	COLUMBUS	163	224	230	SPOKANE	73	74	47
COLUMADO SPRINGS	84	95	97	WORCESTER	44	68	74	DAYTON	179	245	268	STAMPEDE PASS R	1	1	0
DENVER	112	114	110	MICHIGAN				MASSFIELD	109	151	220	WALLA WALLA U	165	212	154
GRAND JUNCTION	225	243	256	ALPENA	47	57	33	TULEO	127	173	186	YAKIMA	91	103	98
PUEBLO	169	195	232	DETROIT	136	184	189	YOUNGSTOWN	95	140	131				
CONNECTICUT				DETROIT METRO	109	141	105	OKLAHOMA				WEST IDAHO			
BRIDGEFORD	79	95	128	FLINT	110	161	117	OKLAHOMA CITY	314	444	545	SAN JUAN P.R.	571	2742	2240
HARTFORD	151	211	126	GRAND RAPIDS	179	175	141	TULSA	386	612	574				
DELAWARE				HIGHTON LAKE	58	76	59	OREGON				RECKLEY	49	81	132
WILMINGTON	123	185	244	LANSING	133	181	137	ASTORIA	0	0	0	CHARLESTON	138	238	338
				MUSKEGON	67	96	100	BURNS U	48	51	30	ELKINS	45	68	109
DIST. OF COLUMBIA				SAULT STE MARIE	13	13	11	FUGENE	16	16	25	HUNTINGTON	173	279	353
WASHINGTON DULLES	147	230	244	MINNESOTA				MONFORD	95	97	84	PARKERSBURG U	129	219	315
WASHINGTON NATIONAL	231	374	404	DULUTH	25	29	14	PENDLETON	114	135	106				
FLORIDA				INTERNATIONAL FALLS	18	19	30	PORTLAND	65	83	45	WISCONSIN			
APALACHICOLA U	426	817	878	MINNEAPOLIS	113	130	149	SALEM	29	29	26	GREEN BAY	68	74	88
CAYUNA BEACH	419	1204	1082	ROCHESTER	119	140	127	SEXTON SUMMIT R	35	40	7	LA CROSSE	104	134	182
FORT MYERS	535	1579	1483	ST CLOUD	52	66	93					MADISON	88	121	114
JACKSONVILLE	369	805	952					PACIFIC AREA				MILWAUKEE	97	103	88
KEY WEST	588	2072	2147	MISSISSIPPI				GUAM TAUJAC R	491	2532	2429				
MIAMI	516	1719	1461	JACKSON	357	653	840	JOHNSTON	459	2304	2313	WYOMING			
ORLANDO	479	1191	1271	MERIDIAN	309	547	821	KUROR R	488	3022	2973	CASPER	62	62	60
PENSACOLA	467	947	1031					KMAJALEIN	526	3144	3011	CHEYENNE	62	63	45
TALLAHASSEE	378	734	977	MISSOURI				MAJUR	504	2932	2914	LANDER	81	83	36
TAMPA	482	1240	1345	COLUMBIA REGIONAL	224	307	371	PAGU WAGO	487	2941	2726	SHERIDAN	42	43	58
WEST PALM BEACH	461	1060	1417	KANSAS CITY	229	310	364	PUNAPE R	506	3017	2837				
GEORGIA				ST JOSEPH	199	247	394	TKUK MOEN ISLAND	527	3122	2935				
ATLANTA	286	506	678	ST LOUIS	354	467	461	WAKE	556	2730	2455				
AUGUSTA	327	584	614	SPRINGFIELD	183	249	394					PENNSYLVANIA			
COLUMBUS	338	760	771					ALLENTOWN	126	149	194				
MACON	375	621	854	PONTANA				EWING	149	191	241				
ROME	285	476	607	GLASBORO	126	138	57	HARRISBURG	136	186	283				
SARASOTA	360	740	851	GREAT FALLS	55	57	36	PHILADELPHIA	146	247	290				
				HAYES	43	88	64	PITTSBURGH	125	175	180				
				HELEA	40	46	20	SCHAFSTON	78	112	145				
				KALISPEL	18	18	9	WILLIAMSPORT	105	156	180				
				MILES CITY	138	168	153					RHODE ISLAND			
				MISSOURI	56	50	18	PRIVIDENCE	22	22	25				

# STORM SUMMARY

1957 1-4

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				o ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE		DEATHS	INJURIES	† DAMAGE	
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS
Alabama	1	1																											
Alaska																													
Arizona	*	1																											
Arkansas																													
California	*																												
Colorado	12	6		1			4	6	6																			5	
Connecticut	*							3	3																				
Delaware								1	1																				
Florida	2	2																											
Georgia														1															
Hawaii	*																												
Idaho												5																	
Illinois	3	5		1	5			2	2																				
Indiana	1	1						5	5		2	5																	
Iowa	18	5	5	70				6	6			6																	
Kansas	6	5						6	6		2	6	6																
Kentucky	1	1							4			5			1														
Louisiana	1	1		1																									5
Maine																													
Maryland & DC								3	3						1														
Massachusetts																													
Michigan	6			1	5									1	47														
Minnesota	17			1	6			6	7		25															1			C
Mississippi																													
Missouri								4	5			6																5	4
Montana	4				9					2		5				5													
Nebraska	8				5		2	6	7	2	3	6				6	2												
Nevada	*																												
New Hampshire																													
New Jersey											1																		
New Mexico	1	1						3							1														4
New York	*																												
North Carolina	1	1						5	5			5			6	4	4												
North Dakota	8	6						5	5			5																	C
Ohio		2		4	5			3	3		9				2	5													
Oklahoma	3							3	6			6	6		7	5										1			
Oregon																													
Pennsylvania	1	1										4			3														
Puerto Rico	1	1										3														1			
Rhode Island															1														
South Carolina								2	6	1		3	2																
South Dakota	15		1		6			4	6			6																	
Tennessee	1	1									2	5																	
Texas	14			2	3							5				5											1		
Utah	*																												
Vermont	*																												
Virginia																													3
Virgin Islands																													
Washington	*																												
West Virginia								3	3																				
Wisconsin	2	4		12											1														
Wyoming	14							6	6																				



# RAWINSONDE DATA

Average monthly values

JUNE 1979

ALBANY, NY 1017 MB										ALBUQUERQUE, NM 840 MB										AMARILLO, TX 892 MB										ANCHORAGE, AK 1010 MB										ANNETTE, AK 1015 MB									
Standard pressure surface mb.										Standard pressure surface mb.										Standard pressure surface mb.										Standard pressure surface mb.										Standard pressure surface mb.									
No. of observations										No. of observations										No. of observations										No. of observations										No. of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg										Direction tens of deg									
Speed m/s										Speed m/s										Speed m/s										Speed m/s										Speed m/s									
500	30	85	14.9	12.4	14	1.6	1.6	1.6	1.6	500	30	1,619	15.4	4.4	10	1.1	1.1	1.1	1.1	500	30	1,095	15.9	11.5	21	7.7	7.7	7.7	7.7	500	30	45	10.4	6.5	19	2.1	30	37	9.5	8.0	12	1.2	1.2	1.2	1.2	1.2	1.2		
1000	30	149	14.5	10.4	14	1.5	1.5	1.5	1.5	1000	30	1,619	15.4	4.4	10	1.1	1.1	1.1	1.1	1000	30	1,095	15.9	11.5	21	7.7	7.7	7.7	7.7	1000	30	139	10.4	5.3	19	2.6	29	165	9.3	7.0	12	1.3	1.3	1.3	1.3	1.3	1.3		
850	30	2,084	14.4	8.6	24	1.2	1.2	1.2	1.2	850	30	1,044	14.4	8.6	24	1.2	1.2	1.2	1.2	850	30	1,044	14.4	8.6	24	1.2	1.2	1.2	1.2	850	30	556	8.4	2.4	19	2.7	30	584	6.9	4.5	16	2.3	2.3	2.3	2.3	2.3	2.3		
900	30	1,050	12.6	5.4	24	1.2	1.2	1.2	1.2	900	30	1,050	12.6	5.4	24	1.2	1.2	1.2	1.2	900	30	1,050	12.6	5.4	24	1.2	1.2	1.2	1.2	900	30	1,000	5.6	1.7	18	2.4	30	1,027	4.2	1.8	19	2.9	2.9	2.9	2.9	2.9	2.9		
850	30	1,029	9.7	2.4	24	1.2	1.2	1.2	1.2	850	30	1,029	9.7	2.4	24	1.2	1.2	1.2	1.2	850	30	1,029	9.7	2.4	24	1.2	1.2	1.2	1.2	850	30	1,465	2.1	1.7	15	2.3	30	1,490	1.5	1.4	20	2.9	2.9	2.9	2.9	2.9	2.9		
900	30	2,030	7.0	1.4	24	1.2	1.2	1.2	1.2	900	30	2,030	7.0	1.4	24	1.2	1.2	1.2	1.2	900	30	2,030	7.0	1.4	24	1.2	1.2	1.2	1.2	900	30	1,953	1.8	1.4	15	2.4	30	1,976	1.1	1.1	20	3.4	3.4	3.4	3.4	3.4	3.4		
750	30	2,169	5.6	1.6	24	1.2	1.2	1.2	1.2	750	30	2,169	5.6	1.6	24	1.2	1.2	1.2	1.2	750	30	2,169	5.6	1.6	24	1.2	1.2	1.2	1.2	750	30	2,489	1.5	1.1	14	2.9	30	2,489	1.1	1.1	21	3.5	3.5	3.5	3.5	3.5	3.5		
700	30	3,124	2.3	1.2	24	1.2	1.2	1.2	1.2	700	30	3,124	2.3	1.2	24	1.2	1.2	1.2	1.2	700	30	3,124	2.3	1.2	24	1.2	1.2	1.2	1.2	700	30	3,008	1.7	1.2	14	1.9	30	3,031	1.6	1.5	23	1.6	1.6	1.6	1.6	1.6	1.6		
650	30	3,176	1.5	1.5	24	1.2	1.2	1.2	1.2	650	30	3,176	1.5	1.5	24	1.2	1.2	1.2	1.2	650	30	3,176	1.5	1.5	24	1.2	1.2	1.2	1.2	650	30	3,584	1.8	1.6	12	1.9	29	3,610	1.6	1.6	20	2.4	2.4	2.4	2.4	2.4	2.4		
600	30	4,151	1.1	1.9	24	1.2	1.2	1.2	1.2	600	30	4,151	1.1	1.9	24	1.2	1.2	1.2	1.2	600	30	4,151	1.1	1.9	24	1.2	1.2	1.2	1.2	600	30	4,197	1.3	1.5	19	1.8	29	4,223	1.3	1.3	22	2.4	2.4	2.4	2.4	2.4	2.4		
550	30	5,135	1.3	2.3	24	1.2	1.2	1.2	1.2	550	30	5,135	1.3	2.3	24	1.2	1.2	1.2	1.2	550	30	5,135	1.3	2.3	24	1.2	1.2	1.2	1.2	550	30	4,879	1.7	1.7	19	1.1	29	4,879	1.7	1.7	28	2.4	2.4	2.4	2.4	2.4	2.4		
500	30	5,765	1.3	2.9	24	1.2	1.2	1.2	1.2	500	30	5,765	1.3	2.9	24	1.2	1.2	1.2	1.2	500	30	5,765	1.3	2.9	24	1.2	1.2	1.2	1.2	500	30	5,560	2.2	2.3	22	1.2	29	5,560	2.2	2.2	32	2.4	2.4	2.4	2.4	2.4	2.4		
450	30	6,561	1.6	3.2	24	1.2	1.2	1.2	1.2	450	30	6,561	1.6	3.2	24	1.2	1.2	1.2	1.2	450	30	6,561	1.6	3.2	24	1.2	1.2	1.2	1.2	450	30	6,325	2.7	2.8	25	1.5	29	6,351	2.7	2.7	36	2.4	2.4	2.4	2.4	2.4	2.4		
400	30	7,431	2.4	3.7	24	1.2	1.2	1.2	1.2	400	30	7,431	2.4	3.7	24	1.2	1.2	1.2	1.2	400	30	7,431	2.4	3.7	24	1.2	1.2	1.2	1.2	400	30	7,160	3.4	3.4	27	2.2	29	7,187	3.4	3.4	33	2.4	2.4	2.4	2.4	2.4	2.4		
350	30	8,293	3.1	5.7	24	1.2	1.2	1.2	1.2	350	30	8,293	3.1	5.7	24	1.2	1.2	1.2	1.2	350	30	8,293	3.1	5.7	24	1.2	1.2	1.2	1.2	350	30	8,063	4.1	4.1	27	3.4	29	8,112	4.0	4.0	45	2.4	2.4	2.4	2.4	2.4	2.4		
300	30	9,466	3.6	6.9	24	1.2	1.2	1.2	1.2	300	30	9,466	3.6	6.9	24	1.2	1.2	1.2	1.2	300	30	9,466	3.6	6.9	24	1.2	1.2	1.2	1.2	300	30	9,111	4.8	4.8	27	5.5	29	9,144	4.7	4.7	51	2.6	2.6	2.6	2.6	2.6	2.6		
250	30	10,685	4.3	8.3	24	1.2	1.2	1.2	1.2	250	30	10,685	4.3	8.3	24	1.2	1.2	1.2	1.2	250	30	10,685	4.3	8.3	24	1.2	1.2	1.2	1.2	250	30	10,301	5.1	5.1	26	8.3	29	10,340	5.0	5.0	72	10.7	10.7	10.7	10.7	10.7	10.7		
200	30	12,136	5.4	10.4	24	1.2	1.2	1.2	1.2	200	30	12,136	5.4	10.4	24	1.2	1.2	1.2	1.2	200	30	12,136	5.4	10.4	24	1.2	1.2	1.2	1.2	200	30	11,753	5.9	5.9	29	7.4	29	11,794	5.9	5.9	89	27	27	27	27	27	27		
175	30	12,989	5.5	11.4	24	1.2	1.2	1.2	1.2	175	30	12,989	5.5	11.4	24	1.2	1.2	1.2	1.2	175	30	12,989	5.5	11.4	24	1.2	1.2	1.2	1.2	175	30	12,629	6.9	6.9	29	6.0	29	12,669	6.9	6.9	92	27	27	27	27	27	27		
150	30	13,777	5.6	12.4	24	1.2	1.2	1.2	1.2	150	30	13,777	5.6	12.4	24	1.2	1.2	1.2	1.2	150	30	13,777	5.6	12.4	24	1.2	1.2	1.2	1.2	150	30	13,661	7.9	7.9	29	6.0	29	13,681	7.9	7.9	101	28	28	28	28	28	28		
125	30	15,132	5.7	14.4	24	1.2	1.2	1.2	1.2	125	30	15,132	5.7	14.4	24	1.2	1.2	1.2	1.2	125	30	15,132	5.7	14.4	24	1.2	1.2	1.2	1.2	125	30	14,839	8.9	8.9	30	1.7	29	14,875	8.9	8.9	109	26	26	26	26	26	26		
100	30	16,537	5.8	16.4	24	1.2	1.2	1.2	1.2	100	30	16,537	5.8	16.4	24	1.2	1.2	1.2	1.2	100	30	16,537	5.8	16.4	24	1.2	1.2	1.2	1.2	100	30	16,3																	

## Average monthly values

1. 3472

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## Average monthly values

NC

ISLE DEL CISNE 1011 Ms						JACKSON, MS 1007 Ms						JOHN F. KENNEDY INT. AP NY 1018 Ms						JOHNSON IS., PACIFIC AREA 1015 Ms						KEY WEST, FL 1015 Ms						
5FC	30	10	27.1	23.7	08	3.7	30	1.00	19.1	16.7	21	.3	30	5	16.5	11.9	19	.6	30	3	26.5	23.1	09	7.3	30	3	26.9	23.2	08	1.8
1000	30	105	26.7	23.8	08	4.4	30	1.51	20.9	18.9	20	.8	30	14.1	16.1	11.5	26	1.1	30	130	24.7	21.3	09	7.8	30	137	26.3	22.5	08	2.9
950	30	558	23.1	20.8	08	6.4	30	559	21.3	15.7	22	3.0	30	597	15.1	.47	28	2.6	30	579	21.7	19.7	09	8.7	30	589	22.6	19.8	09	4.0
900	30	1,029	20.6	16.5	08	7.4	30	1,088	14.5	11.9	21	2.0	30	1,054	13.2	.47	29	2.8	30	1,047	18.3	15.4	09	9.0	30	1,059	19.8	15.3	10	3.5
850	30	1,522	17.8	13.2	09	6.5	30	1,555	15.6	8.2	23	1.8	30	1,513	10.7	.49	28	3.1	30	1,535	15.3	12.7	09	8.5	30	1,550	17.1	11.1	09	3.0
800	30	2,035	14.7	9.9	09	6.2	30	2,067	12.4	.50	27	1.9	30	2,033	8.2	-1.0	24	4.2	30	2,048	12.9	8.4	09	7.3	30	2,066	11.6	5.8	09	2.2
750	30	2,588	12.7	7.1	09	5.8	30	2,607	11.9	.49	26	2.9	30	2,568	.5	-6.6	27	5.0	30	2,589	11.1	-4.9	09	6.0	30	2,611	11.8	.7	12	3.4
700	30	3,167	9.6	-1.6	10	4.8	30	3,176	7.2	-6.3	27	3.1	30	3,130	2.9	-10.4	27	5.6	30	3,163	8.9	-.7	06	2.5	30	3,184	8.7	-4.7	12	1.0
650	30	3,772	6.4	-4.0	10	4.9	30	3,784	4.1	-10.4	30	3.3	30	3,727	-.1	-14.9	28	6.3	30	3,773	5.8	-12.7	36	1.2	30	3,794	5.9	-8.5	07	.4
600	30	4,425	2.7	-7.5	10	4.3	30	4,431	.3	-13.2	31	3.6	30	4,364	-3.5	-19.4	28	7.3	30	4,421	1.9	-15.2	30	2.1	30	4,445	2.1	-11.9	02	.3
550	30	5,124	-1.5	-10.7	10	3.6	30	5,123	-.4	-19.7	30	4.4	30	5,047	-.74	-22.8	28	7.9	30	5,120	-2.4	-17.4	27	3.6	30	5,142	-2.1	-15.9	30	.7
500	30	5,878	-5.9	-15.5	09	2.8	30	5,865	-.87	-23.8	29	5.9	30	5,782	-12.4	-26.9	28	8.7	30	5,870	-7.0	-22.1	27	5.0	30	5,893	-6.7	-20.9	31	1.5
450	30	6,698	-10.7	-21.9	09	2.4	30	6,676	-13.8	-26.7	29	6.8	30	6,579	-17.5	-32.3	28	9.2	30	6,693	-12.1	-26.2	27	6.3	30	6,709	-11.5	-26.8	31	2.6
400	30	7,592	-16.1	-28.3	09	1.0	30	7,562	-20.0	-34.6	30	9.3	30	7,451	-23.7	-37.9	27	10.7	30	7,573	-16.3	-31.7	27	8.8	30	7,602	-17.6	-32.7	31	3.4
350	30	8,586	-23.3	-35.4	34	.7	30	8,547	-26.9	-41.4	30	11.6	30	8,416	-30.7	-43.7	28	12.4	30	8,559	-25.1	-37.7	28	12.3	30	8,590	-24.8	-39.2	31	4.3
300	30	9,692	-31.8	-42.7	32	2.3	30	9,632	-35.2	-47.5	30	12.8	30	9,499	-39.2	-49.6	28	13.4	30	9,656	-33.4	-45.2	27	16.7	30	9,690	-33.1	-46.5	30	5.6
250	30	10,954	-41.8		31	3.7	30	10,978	-44.6		31	15.3	29	10,715	-48.2		29	15.7	30	10,910	-43.3		26	21.0	29	10,944	-43.1		30	7.5
200	30	12,427	-53.7		31	6.4	30	12,330	-54.4		30	18.2	28	12,113	-55.4		28	15.7	30	12,374	-54.6		26	25.9	29	12,408	-54.9		31	9.6
150	30	13,274	-63.6		31	6.7	30	13,185	-58.7		30	17.9	28	13,111	-56.7		28	14.3	30	13,214	-61.3		27	28.5	29	13,251	-60.4		31	10.5
100	30	14,215	-67.8		31	5.2	30	14,146	-63.1		30	15.2	28	13,988	-57.6		28	12.7	30	14,157	-61.9		27	29.1	29	14,200	-65.8		32	9.3
75	30	15,294	-74.7		34	5.0	30	15,255	-66.4		34	11.0	28	15,175	-58.6		28	10.4	30	15,336	-73.3		27	25.4	29	15,294	-70.5		33	7.7
25	30	16,594	-76.0		04	6.8	30	16,595	-69.2		04	4.3	28	16,532	-60.4		28	4.4	30	16,633	-73.4		27	12.7	29	16,610	-71.8		02	5.5
80	30	17,884	-71.9		07	7.7	30	17,933	-67.1		04	3.0	24	17,926	-59.3		30	2.7	29	17,848	-69.2		27	1.0	29	17,933	-69.3		07	6.4
20	30	18,671	-67.8		09	9.4	30	18,744	-63.9		08	4.8	28	18,766	-57.8		30	1.5	29	18,647	-67.2		09	4.2	29	18,737	-65.8		07	8.1
60	30	19,616	-60.4		08	10.5	30	19,697	-61.3		09	7.2	29	19,741	-56.5		06	2.2	29	19,580	-65.0		09	8.4	29	19,682	-62.5		08	10.9
25	30	20,744	-64.2		05	13.4	30	21,177	-58.0		09	8.8	28	20,903	-54.5		06	1.1	29	20,703	-61.1		09	11.7	29	20,818	-58.3		09	13.3
20	30	21,149	-60.4		09	17.1	30	21,645	-56.6		09	4.4	29	22,146	-52.2		06	1.3	29	22,090	-57.6		09	15.3	29	22,223	-54.6		09	14.9
20	30	23,991	-3.0		07	21.2	30	24,115	-50.1		09	10.9	48	24,216	-48.7		09	5.4	29	23,929	-54.2		09	20.2	28	24,100	-50.1		09	16.1
25	30	25,174	-49.9		09	23.1	29	25,330	-48.1		09	11.7	45	25,543	-46.6		08	5.7	29	25,105	-51.8		09	23.4	25	25,294	-48.3		09	16.8
20	30	26,687	-45.9		09	24.7	29	26,788	-45.4		09	12.9	23	26,913	-43.8		06	4.1	28	26,652	-48.7		09	26.5	24	26,769	-45.7		09	17.7
15	30	28,579	-81.7		08	26.2	28	27,719	-82.7		29	14.3	20	28,936	-40.7		06	6.7	28	28,474	-44.8		09	27.8	20	28,701	-42.7		08	19.5
7	30	31,374	-39.7		20	31,498	-37.9		29	31,499	-35.1		09	16.0	17	31,653	-35.7		18	31,194	-42.1		09	30.0	7	31,436	-39.9			

## Average monthly values

[illegible]





# RAWINSONDE DATA

Average monthly values

NOV 1979

SALEM, OR 1015 MB										SALT LAKE CITY, UT 871 MB										SAN DIEGO, CA 998 MB										SAN JUAN, P. R. 1015 MB										SAULT STE MARIE, MI 989 MB									
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m.p.s													
500	30	1.1	10.4	7.2	22	2.1	30	1.288	19.4	2.8	16	5.1	30	12.4	18.2	13.5	33	2.2	30	25.5	27.5	11	4.2	30	22.1	10.7	7.5	13	2	30	22.1	10.7	7.5	13	2	30	22.1	10.7	7.5	13	2								
1000	30	1.1	11.1	7.2	22	2.1	30	1.288	19.4	2.8	16	5.1	30	12.4	18.2	13.5	33	2.2	30	25.5	27.5	11	4.2	30	22.1	10.7	7.5	13	2	30	22.1	10.7	7.5	13	2	30	22.1	10.7	7.5	13	2								
900	30	1.1	10.4	8.3	27	2.1	30	1.499	18.8	-7.2	16	4.6	30	1.505	20.5	-2.9	31	2.5	30	1.550	16.9	-1.8	13	7.5	30	1.490	9.4	2.2	26	5.9	30	1.490	9.4	2.2	26	5.9	30	1.490	9.4	2.2	26	5.9							
850	30	2.2	6.1	-6.7	27	2.1	30	3.014	16.8	-7.2	16	4.7	30	2.026	18.2	-5.0	27	2.7	30	2.067	15.1	-6.8	13	7.2	30	1.991	6.7	-1.0	26	6.8	30	1.991	6.7	-1.0	26	6.8	30	1.991	6.7	-1.0	26	6.8							
750	30	2.5	3.3	-14.7	27	2.1	30	2.562	21.7	-15.5	28	5.8	30	2.575	14.5	-8.0	27	2.7	30	2.611	12.3	-1.5	13	6.7	30	2.518	3.7	-5.4	26	7.6	30	2.518	3.7	-5.4	26	7.6	30	2.518	3.7	-5.4	26	7.6							
700	30	3.106	1.2	-13.7	27	2.1	30	3.110	8.1	-8.1	28	5.4	30	3.127	10.4	-11.3	25	1.2	30	3.186	8.8	-4.4	14	5.5	30	3.076	-2.7	-10.5	26	8.5	30	3.076	-2.7	-10.5	26	8.5	30	3.076	-2.7	-10.5	26	8.5							
650	30	3.497	-2.1	-17.2	26	7.4	30	3.744	2.9	-16.7	26	6.3	30	3.764	6.4	-11.6	24	4.3	30	3.796	5.2	-6.8	14	4.5	30	3.670	-2.0	-11.7	27	9.0	30	3.670	-2.0	-11.7	27	9.0	30	3.670	-2.0	-11.7	27	9.0							
600	30	4.370	-5.4	-21.5	27	8.4	30	4.383	-2.5	-14.7	25	7.3	30	4.414	1.7	-17.1	24	5.1	30	4.445	1.8	-9.8	15	3.5	30	4.302	-5.8	-18.1	27	10.1	30	4.302	-5.8	-18.1	27	10.1	30	4.302	-5.8	-18.1	27	10.1							
550	30	5.300	-10.4	-27.6	26	9.7	30	5.307	-7.6	-19.2	25	7.7	30	5.109	-3.2	-21.6	25	5.1	30	5.142	-2.4	-11.7	16	2.6	30	4.972	-9.8	-23.5	27	11.6	30	4.972	-9.8	-23.5	27	11.6	30	4.972	-9.8	-23.5	27	11.6							
500	30	5.733	-15.5	-30.8	26	11.2	30	5.800	-13.4	-24.6	25	9.8	30	5.855	-8.5	-27.3	26	6.6	30	5.894	-6.5	-16.6	22	2.3	30	5.707	-14.5	-28.6	27	11.7	30	5.707	-14.5	-28.6	27	11.7	30	5.707	-14.5	-28.6	27	11.7							
450	30	6.670	-20.1	-35.1	26	12.5	30	6.742	-18.5	-32.9	25	10.5	30	6.844	-14.1	-31.7	26	8.7	30	6.709	-11.4	-22.1	24	2.4	30	6.497	-20.0	-33.2	27	13.5	30	6.497	-20.0	-33.2	27	13.5	30	6.497	-20.0	-33.2	27	13.5							
400	30	7.374	-27.4	-44.8	26	14.5	30	7.462	-24.5	-39.7	25	12.9	30	7.546	-21.0	-37.7	26	8.2	30	7.491	-17.4	-29.7	26	3.4	30	7.360	-26.3	-40.0	27	17.0	30	7.360	-26.3	-40.0	27	17.0	30	7.360	-26.3	-40.0	27	17.0							
350	30	8.324	-34.4	-49.9	27	15.7	30	8.423	-31.6	-45.7	25	14.1	30	8.521	-28.5	-45.0	26	9.6	30	8.453	-24.1	-33.8	28	3.6	30	8.315	-33.5	-44.6	27	15.6	30	8.315	-33.5	-44.6	27	15.6	30	8.315	-33.5	-44.6	27	15.6							
300	30	9.384	-42.3	-54.9	27	17.7	30	9.492	-38.8	-51.1	25	15.8	30	9.603	-37.0	-49.4	26	12.1	30	9.607	-32.4	-43.6	27	5.5	30	9.377	-41.1	-47.7	28	17.9	30	9.377	-41.1	-47.7	28	17.9	30	9.377	-41.1	-47.7	28	17.9							
250	30	10.587	-50.2	-60.2	27	20.2	30	10.715	-48.4	-56.4	26	17.5	30	10.874	-46.4	-54.4	26	15.1	30	10.955	-42.6	-50.6	28	6.6	30	10.595	-49.0	-58.2	28	21.3	30	10.595	-49.0	-58.2	28	21.3	30	10.595	-49.0	-58.2	28	21.3							
200	30	12.034	-55.4	-65.4	27	24.8	30	12.158	-53.4	-61.4	26	20.2	30	12.290	-51.4	-59.4	26	18.7	30	12.421	-49.4	-57.4	28	9.7	30	12.042	-53.8	-62.0	28	20.3	30	12.042	-53.8	-62.0	28	20.3	30	12.042	-53.8	-62.0	28	20.3							
150	30	12.984	-58.4	-68.4	28	26.4	30	13.084	-57.4	-65.4	28	19.4	30	13.154	-55.4	-63.4	28	17.6	30	13.264	-51.4	-61.4	30	11.4	30	12.901	-53.3	-61.5	28	19.5	30	12.901	-53.3	-61.5	28	19.5	30	12.901	-53.3	-61.5	28	19.5							
100	30	13.874	-61.4	-71.4	28	28.4	30	13.954	-60.4	-68.4	28	18.4	30	14.004	-58.4	-66.4	28	16.8	30	14.104	-56.4	-64.4	30	10.4	30	13.891	-51.4	-60.6	28	21.0	30	13.891	-51.4	-60.6	28	21.0	30	13.891	-51.4	-60.6	28	21.0							
50	30	15.464	-65.2	-75.2	28	31.4	30	15.514	-63.2	-71.2	28	14.4	30	15.514	-61.2	-69.2	28	12.8	30	15.594	-59.2	-67.2	30	8.4	30	15.482	-54.4	-63.6	28	23.2	30	15.482	-54.4	-63.6	28	23.2	30	15.482	-54.4	-63.6	28	23.2							
0	30	16.461	-68.6	-78.6	28	34.4	30	16.511	-66.6	-74.6	28	12.8	30	16.571	-64.6	-72.6	28	11.2	30	16.661	-62.6	-70.6	30	7.4	30	16.484	-56.2	-65.4	28	24.0	30	16.484	-56.2	-65.4	28	24.0	30	16.484	-56.2	-65.4	28	24.0							
80	30	17.878	-68.1	-78.1	25	4.1	30	17.924	-66.1	-74.1	26	2.8	30	17.971	-64.1	-72.1	26	1.4	30	17.998	-62.1	-70.1	28	3.4	30	17.903	-55.7	-64.9	28	5.5	30	17.903	-55.7	-64.9	28	5.5	30	17.903	-55.7	-64.9	28	5.5							
70	30	18.727	-55.7	-65.7	28	2.5	30	18.744	-53.7	-61.7	28	1.4	30	18.739	-51.7	-59.7	28	1.0	30	18.698	-49.7	-57.7	30	7.5	30	18.755	-55.0	-64.2	28	3.4	30	18.755	-55.0	-64.2	28	3.4	30	18.755	-55.0	-64.2	28	3.4							
60	30	19.710	-60.2	-70.2	28	1.6	30	19.716	-58.2	-66.2	28	1.4	30	19.785	-56.2	-64.2	28	1.0	30	19.735	-54.2	-62.2	30	10.7	30	19.743	-53.9	-63.1	28	10.7	30	19.743	-53.9	-63.1	28	10.7	30	19.743	-53.9	-63.1	28	10.7							
50	30	20.716	-65.6	-75.6	28	1.1	30	20.722	-63.6	-71.6	28	1.1	30	20.782	-61.6	-69.6	28	1.0	30	20.732	-59.6	-67.6	30	14.2	30	20.736	-57.6	-66.8	28	14.2	30	20.736	-57.6	-66.8	28	14.2	30	20.736	-57.6	-66.8	28	14.2							
40	30	21.711	-60.1	-70.1	28	0.8	30	21.717	-58.1	-66.1	28	0.8	30	21.777	-56.1	-64.1	28	0.9	30	21.727	-54.1	-62.1	30	11.6	30	21.733	-51.3	-60.5	28	11.6	30	21.733	-51.3	-60.5	28	11.6	30	21.733	-51.3	-60.5	28	11.6							
30	30	22.188	-49.6	-59.6	08	3.8	30	22.182	-47.6	-55.6	08	3.3	30	22.186	-45.6	-53.6	08	3.0	30	22.181	-43.6	-51.6	08	2.7	30	22.176	-41.6	-49.6	08	2.4	30	22.171	-39.6	-47.6	08	2.1	30	22.166	-37.6	-45.6	08	1.8							
20	30	23.214	-49.0	-49.0	08	3.4	30	23.214	-49.0	-49.0	08	3.4	30	23.214	-49.0	-49.0	08	3.4	30	23.214	-49.0	-49.0	08	3.4	30	23.214	-49.0	-49.0	08	3.4	30	23.214	-49.0	-49.0	08	3.4	30	23.214	-49.0	-49.0	08	3.4							
10	30	25.417	-40.1	-40.1	08	3.4	30	25.417	-40.1	-40.1	08	3.4	30	25.417	-40.1	-40.1	08	3.4	30	25.417	-40.1	-40.1	08	3.4	30	25.417	-40.1	-40.1	08	3.4	30	25.417	-40.1	-40.1	08	3.4	30	25.417	-40.1	-40.1	08	3.4							
0	30	26.903	-40.1	-40.1	08	3.4	30	26.903	-40.1	-40.1	08	3.4	30	26.903	-40.1	-40.1	08	3.4	30	26.903	-40.1	-40.1	08	3.4	30	26.903	-40.1	-40.1	08	3.4	30	26.903	-40.1	-40.1	08	3.4	30	26.903	-40.1	-40.1	08	3.4							
15	30	28.654	-40.2	-40.2	08	3.4																																											



## Average monthly values

JUNE 1979

YAP, CAROLINE IS.  
1008 MB

5FC	30	14	28.0	25.2	10	2.6
100C	30	45	26.7	24.9	10	2.9
95C	30	539	23.8	22.3	10	4.5
90J	30	1,012	21.1	18.9	10	4.5
85C	30	1,507	18.7	15.4	10	4.1
80C	30	2,027	16.2	12.8	10	4.4
75C	30	2,575	13.8	9.4	10	4.8
70C	30	3,154	10.5	4.7	10	4.7
65C	30	3,764	7.2	1.3	09	5.5
60C	30	4,424	3.5	-1.5	09	5.5
55C	30	5,126	-1.4	-5.4	09	4.8
50C	30	5,884	-4.5	-10.0	09	4.7
45C	30	6,707	-9.1	-15.2	08	2.7
40C	30	7,610	-14.7	-21.9	08	1.6
35C	30	8,611	-21.2	-28.6	08	1.2
30C	30	9,725	-29.4	-36.6	08	1.0
25C	30	11,062	-39.9	-46.6	07	1.0
20C	30	12,445	-52.4		27	3.0
175	30	13,313	-69.9		29	3.4
150	30	14,277	-67.9		30	3.3
125	30	15,352	-75.6		30	3.0
100	30	16,427	-79.4		35	2.1
80	30	17,989	-74.1		34	3.0
70	30	19,695	-70.3		09	4.4
60	30	19,619	-66.9		09	6.3
50	30	20,734	-62.3		05	10.7
40	30	22,123	-59.0		09	18.5
30	30	23,940	-54.6		04	27.7
25	27	25,121	-51.9		06	30.6
20	25	26,574	-48.0		09	33.4
15	23	28,486	-43.6		09	36.3
10	19	31,426	-39.3			

## SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

## NET RADIATION

Net radiation in langley's per day (6 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley . . .	188	148	116	85	126	199	121	132	194	225	158	156	191	102	113	112	144	111	214	159	117	111	235	139	111	111	174	125	160	168	175	

## CORRECTIONS

Heating Degree Days April 14, 4

101-4011

for 1.1, the up. this. M on

Birmingham

—

200

Normal, July through this month

242



# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $9 \times ^\circ\text{C} + 32$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

o Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

\* No Storm Data Report received for this State.

\* Report Incomplete.

\* Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

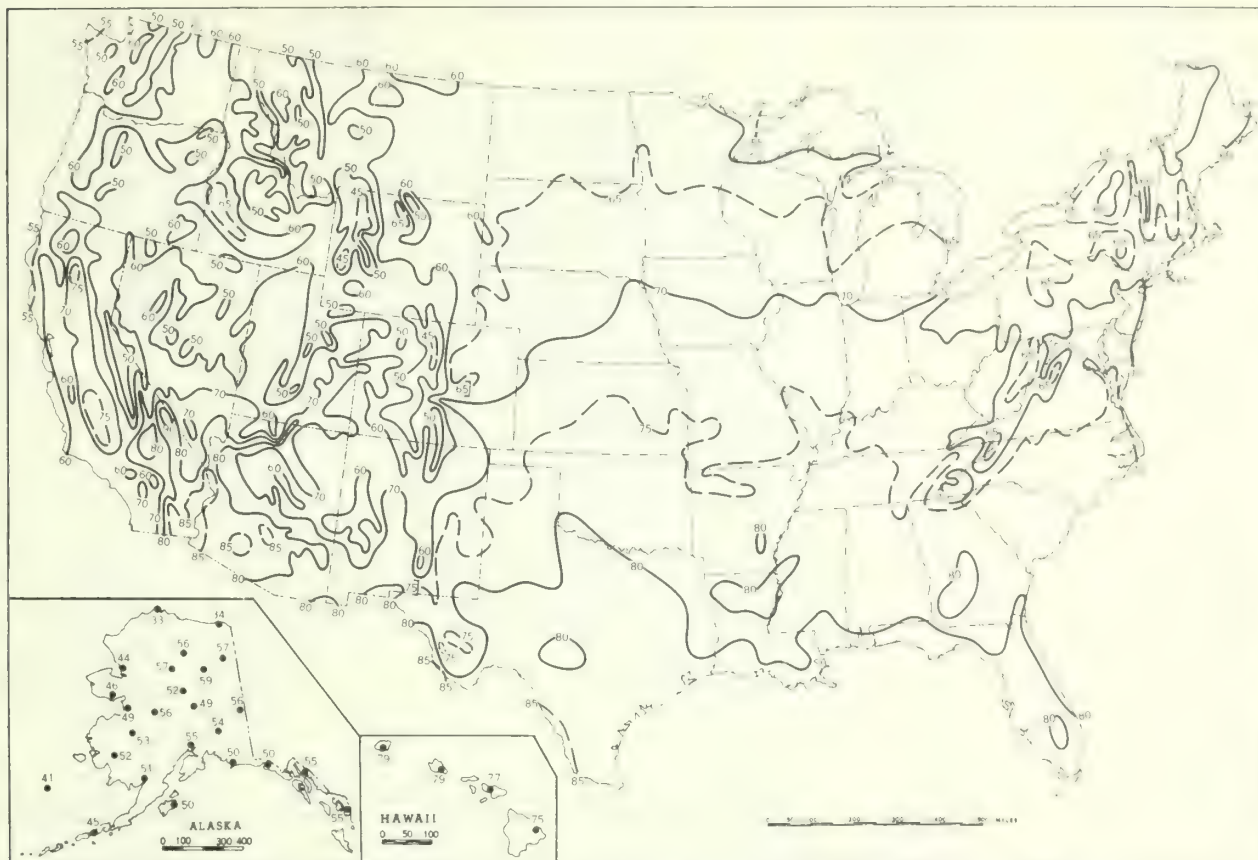
SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
* Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN Blowing Sand	GF	Ground Fog	K	Smoke	N	Sand
D Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), June.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), June 1979

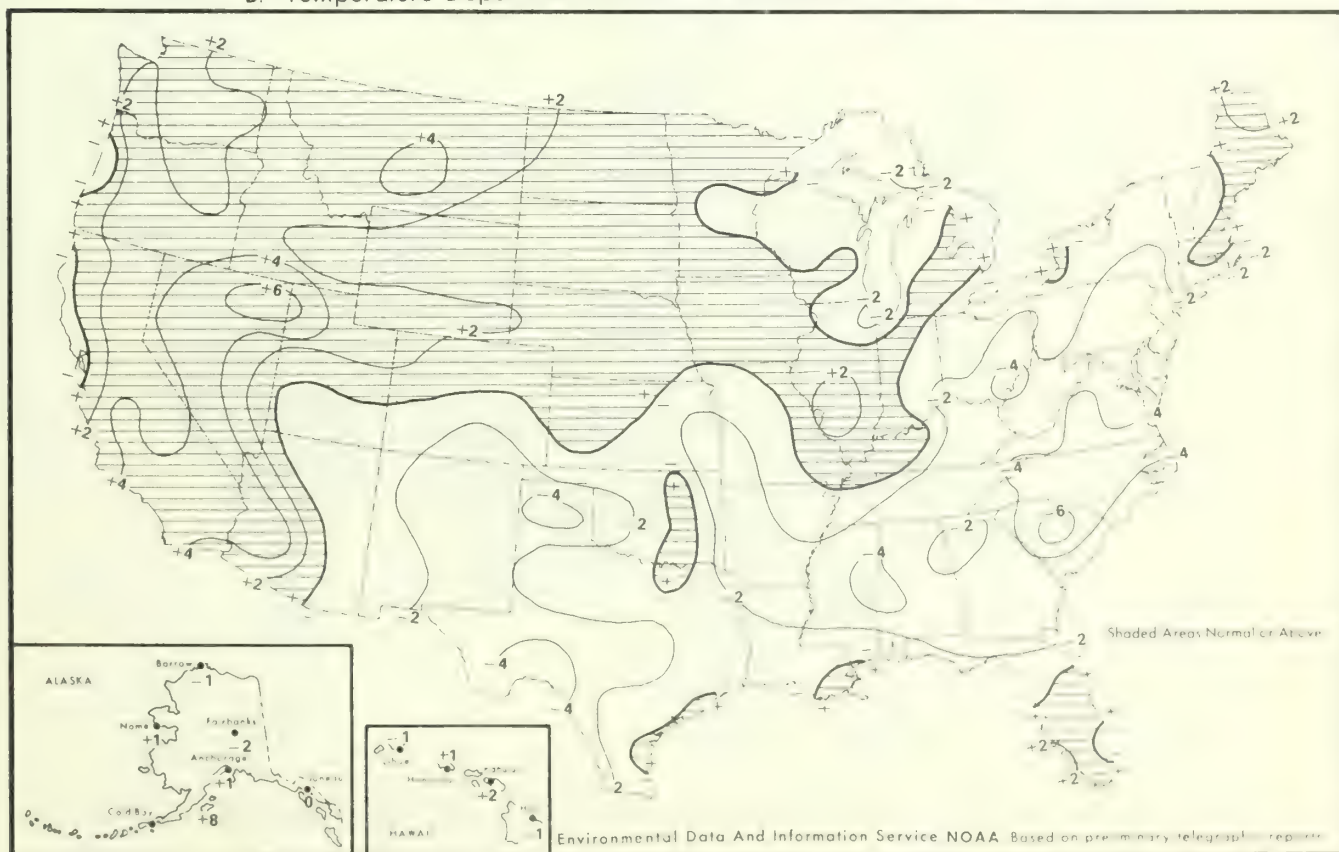
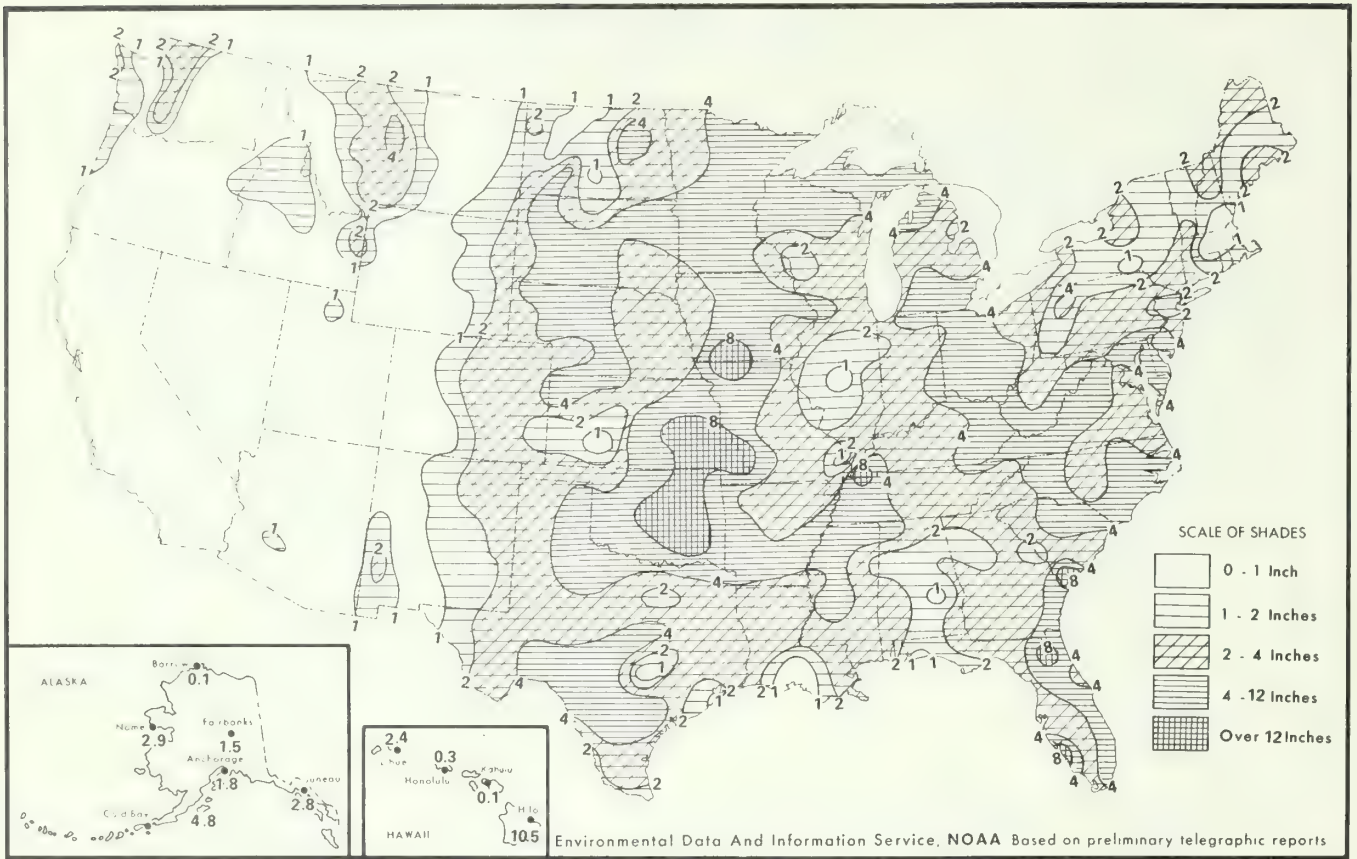




Chart II. A. Total Precipitation (Inches), June 1979



B. Percentage of Normal Precipitation, June 1979

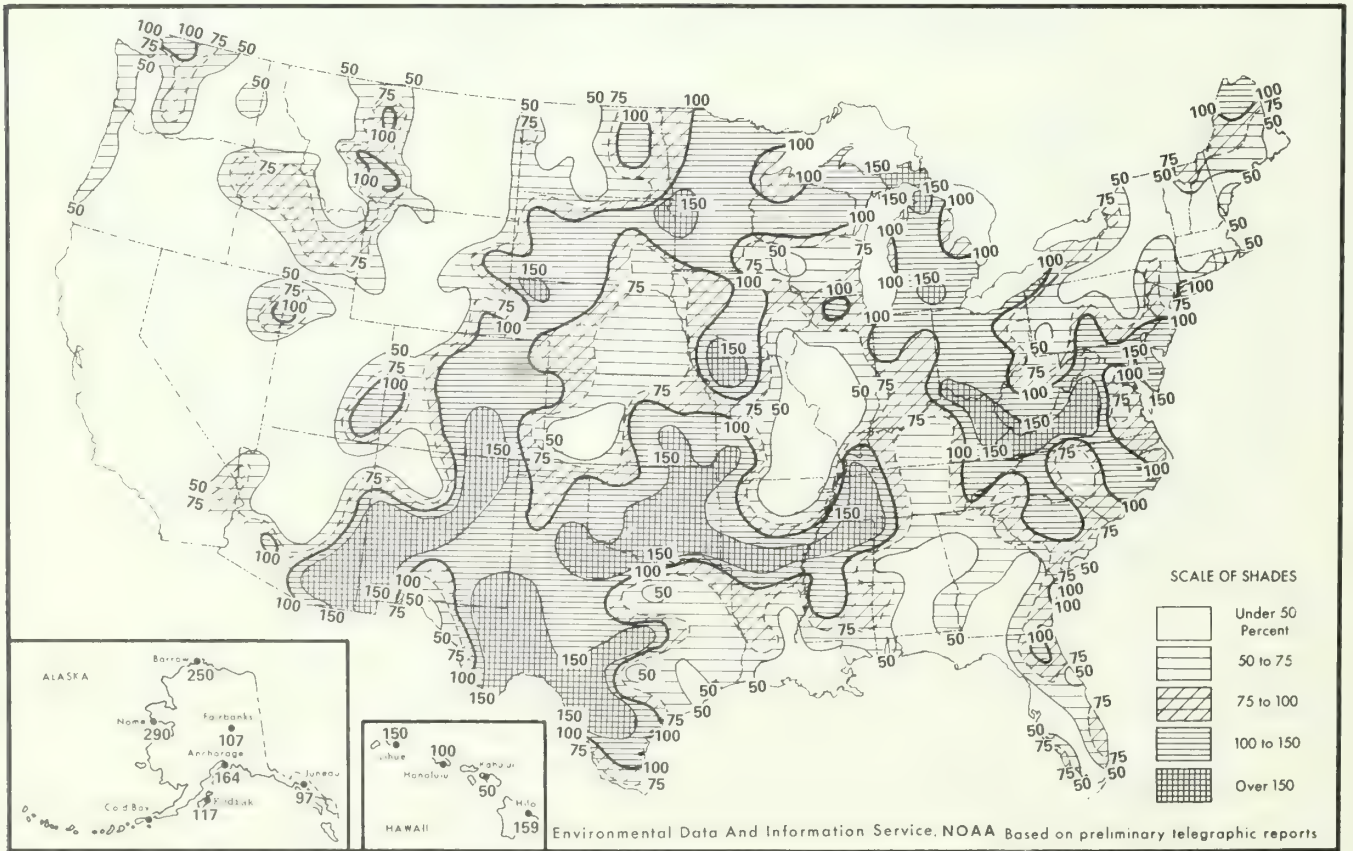


Chart III. Tracks of Anticyclones at Sea Level, June 1979

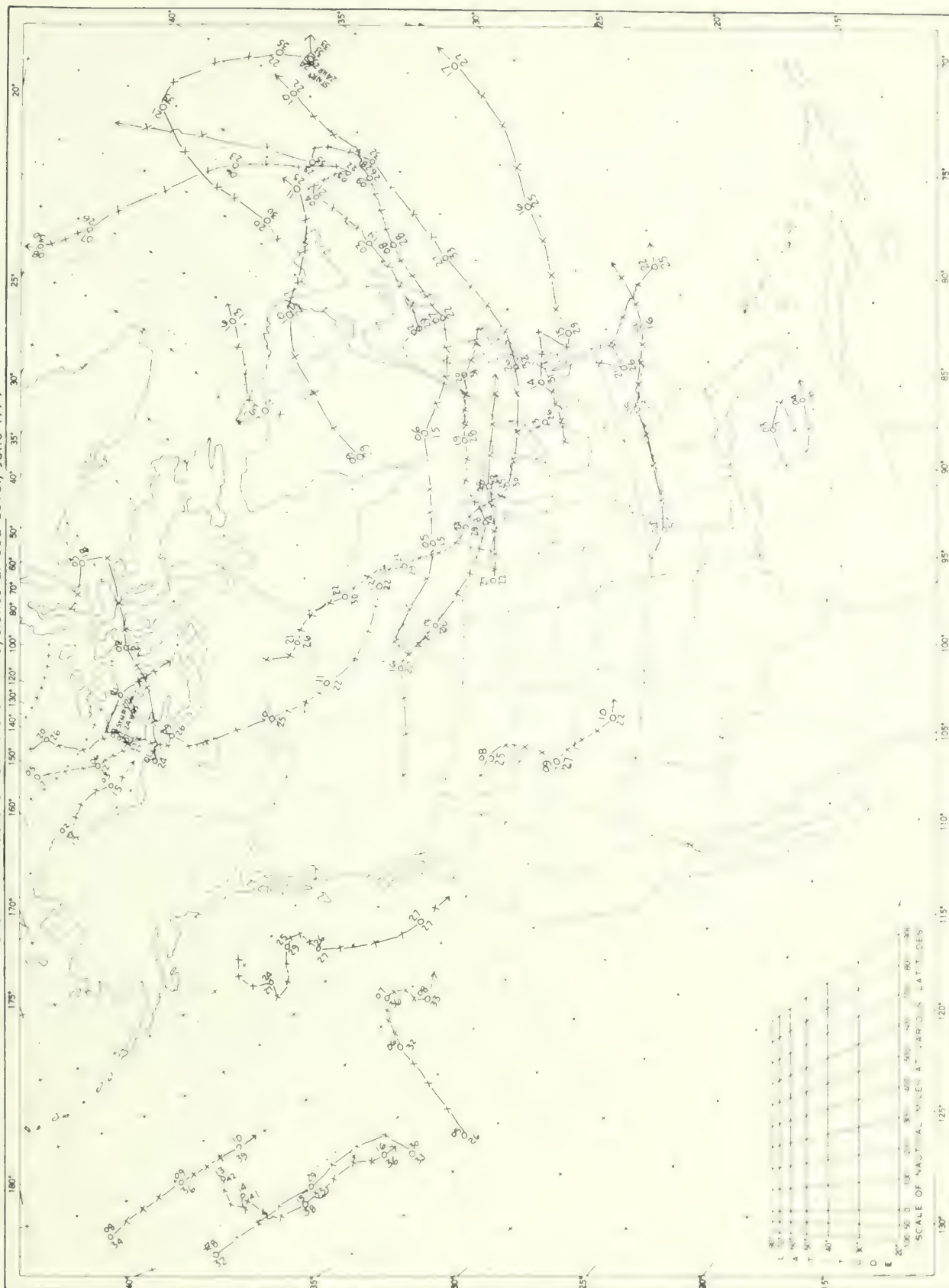
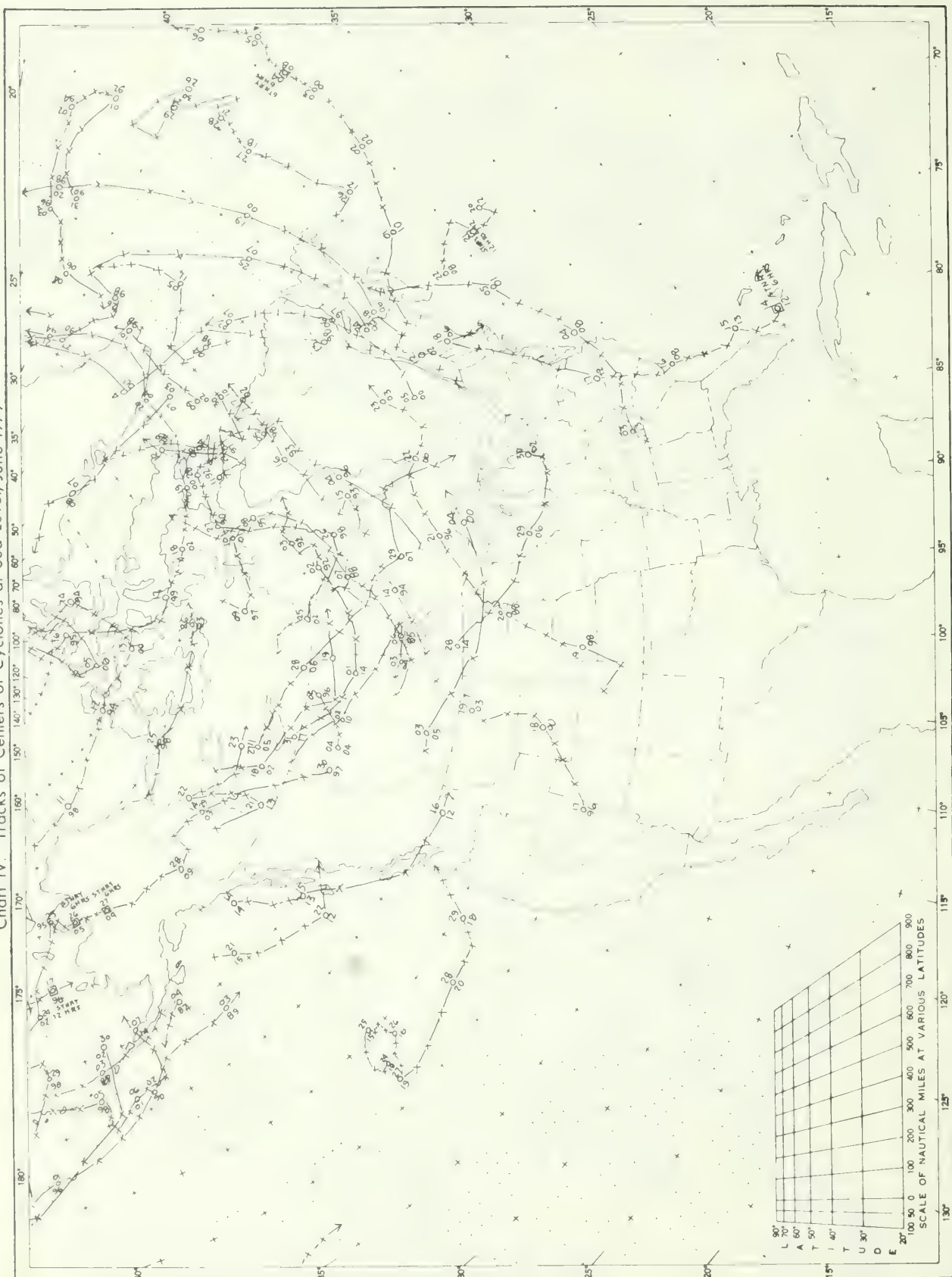




Chart IV. Tracks of Centers of Cyclones at Sea Level, June 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.















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JULY 1979

VOLUME 30

NUMBER 7

# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF  
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TION AND IS COMPILED FROM INFORMATION RECEIVED AT  
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CAROLINA 28801."

*Daniel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

**noaa**

NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

ENVIRONMENTAL DATA AND  
INFORMATION SERVICE

NATIONAL CLIMATIC CENTER  
ASHEVILLE, N.C.

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

JULY 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** July rainfall covered nearly every point in the country. Some areas in the normally dry Southwest and Plateau Region received up to 2 inches. Two tropical systems, Bob and Claudette, dominated the rain patterns in the East. Both storms, occurring a week apart, followed similar tracks from southeastern Texas to the Ohio Valley and the middle Atlantic States. Flooding occurred in Texas and Indiana. Temperatures in the Pacific Northwest averaged above normal. During parts of the month, unusual high readings ranged above 100° in the State of Washington. Temperatures in New Mexico and New England also averaged well above normal for the month.

A cool high pressure system was poised over Hudson Bay in Canada as July began. As the first week of the month progressed, the cold front marking the periphery of the cool air moved southward and encompassed all of the central and eastern United States. Precipitation fell all along the front as it moved southward. Light amounts were recorded in very dry central Illinois. The heaviest rain fell in the eastern portion of the southern Plains and in the central Gulf Coast States, where severe weather, including heavy downpours and tornadoes, was reported. Tornadoes also touched down in the eastern Great Plains.

Many record low temperatures chilled the Midwest and Eastern Seaboard. Only the Rocky Mountains and Florida showed warmer than normal temperatures.

The cool air moved eastward out of the Nation during the early part of the second week (9th to 15th). Light showers edged through the eastern part of the Midwest as the cooler air departed. At midweek, Hurricane Bob moved onto the Louisiana coast and proceeded to the Ohio Valley and the Middle Atlantic States. Heavy downpours fell along the track of the

storm. Five to 8 inches were measured in Mississippi, Alabama and southern Indiana. Another area of thunderstorms rolled into the northern Plains in the latter half of the week. Temperatures ranged warmer than normal throughout the Southwest, the Plains, and through the Great Lakes to New England.

Early in the third week of the month (16th to 22d), showers and thunderstorms formed in the central and northern Plains, but then the moisture from the Gulf of Mexico began to flow toward the Southwest. Above-normal rain fell as showers in the Southwest and the Plateau Region. Heavy showers also fell in central and western Texas, the Southeast, and throughout the area east of the Appalachians.

The Pacific Northwest averaged 9 to 10° warmer than normal with some daytime temperatures exceeding 100° as far north as the State of Washington. The central Plains cooled to an average of 6° below normal.

In the beginning of the last period (23d to 31st), Tropical Storm Claudette approached the southeastern coast of Texas. The storm was downgraded to a low pressure system as it moved slowly to northeastern Texas. A circulation pattern carried large amounts of moisture into the area from southeastern Texas to the Midwest. More than 12 inches of rain flooded portions of the Texas coast. Five or more inches fell on already wet southern Indiana and flooded large acreages there. Only at week's end did the remnants of the storm move out of the country through the Middle Atlantic States. The last two days of the month produced thunderstorms from the central Plains to the upper Mississippi Valley. Hot weather continued in the West and from the mid-Atlantic Coast through New England.



# HURRICANE BOB

July 9 - 16, 1979

National Hurricane Center, NOAA  
Miami, Florida

Hurricane Bob developed from one of the many disturbances that originate over Africa each hurricane season. It was first detected in the eastern North Atlantic near the Cape Verde islands the last week of June and continued westward without showing any signs of development until the system reached the northwest Caribbean on 6 July.

After passing across the Yucatan Peninsula during the 7th, a weak circulation began forming on the 8th and organized into the third tropical depression of the year by the 9th.

On the morning of the 10th an Air Force reconnaissance aircraft reported a developing tropical storm about 400 mi south of the Louisiana Coast with maximum winds estimated 50 kts and lowest pressure 998 mbs. This was a drop of 14 mbs since the flight on the previous day. Afternoon flights measured winds of 60 to 70 kts and reported that the lowest pressure had dropped another 10 mbs. The storm was upgraded to a hurricane in the late afternoon and it remained a minimal hurricane with lowest pressure 986 mbs as the center moved inland west of Grand Isle, LA, early on the morning of the 11th.

During the development stage the depression moved toward the northeast around 10 kts. After reaching tropical storm strength, Bob made a gradual turn to the north with an increase in forward speed to 15 kts as it approached the coast. This motion was associated with the effects of a deepening upper level trough west of the system. The upper atmospheric acceleration of the wind field over Bob, which was produced by this trough, contributed significantly to the hurricanes rather rapid intensification.

After moving inland Bob moved north northeast up the Mississippi Valley into western Tennessee on the 12th

and into southern Ohio the 13th. Thereafter, the low pressure area that was once Bob drifted southeast off the mid-Atlantic coast on the 16th and was absorbed in a low pressure system over the western Atlantic.

The statistics associated with Bob were typical of a minimal hurricane. Tides were generally 3 to 5 feet above normal and rainfall totals between 3 and 6 inches. Highest winds were 45 to 55 kts along the coast with a few locations reporting 65 kt winds. Eight tornadoes were reported but only one produced significant damage. A tornado caused damage estimated at \$27,500 in Biloxi, MS. There was one death and one injury in Lafitte, LA, when two men were blown off a marina roof during the height of the storm.

No serious flooding was reported in Louisiana, Mississippi, or Alabama. The remnants of Bob produced flooding over portions of Indiana, Ohio, and West Virginia, but details are sketchy at this time.

A number of boats were sunk or damaged and there was considerable pier damage due to high tides and rough seas. Besides the usual tree and power line damage, gusty winds produced some window breakage in the business district of New Orleans. Total storm damage may reach several million dollars including an estimated one quarter million dollars in Harrison County, MS, alone.

Hurricane Bob was a well behaved storm so that warnings and forecasts were exceptionally good. The fact that Bob was a minimal hurricane may make it difficult for the public to comprehend the danger, and to heed the warnings, when a more severe storm strikes the United States coast.

# HURRICANE BOB

## Preliminary Report

<u>DATE</u>	<u>TIME (GMT)</u>	<u>LAT.</u>	<u>LONG.</u>	<u>PRESSURE (MB)</u>	<u>WIND (KT)</u>	<u>STAGE</u>
7/9	1200	22.0	96.0	1012	20	DEPRESSION
	1800	22.5	95.3	1010	25	
7/10	0000	23.0	94.6	1007	30	TROPICAL STORM
	0600	23.5	93.8	1004	35	
	1200	24.0	93.0	998	50	
	1800	25.0	92.3	996	55	
7/11	0000	26.2	91.6	988	65	HURRICANE
	0600	27.8	91.1	991	65	
	1200	29.1	90.6	986	65	
	1800	31.0	90.2	992	40	
7/12	0000	32.5	89.9	998	30	DEPRESSION
	0600	34.0	89.7	1002	25	
	1200	35.9	89.1	1004	25	
	1800	37.2	87.8	1006	25	
7/13	0000	38.5	86.5	1006	25	
	1200	39.0	84.0	1007	25	
7/14	0000	39.0	81.3	1009	20	
	1200	38.3	78.8	1010	20	
7/15	0000	37.5	76.5	1011	20	
	1200	36.0	76.0	1012	20	
7/16	0000	34.0	76.5	1013	20	
	1200	33.0	75.0	1014	20	

# TROPICAL STORM CLAUDETTE

July 15 - 29, 1979

National Hurricane Center, NOAA  
Miami, Florida

Claudette was a tropical storm for two brief periods separated by a five day interval during which it weakened to a disorganized tropical wave. However, the storm will long be remembered for its record-breaking rains in eastern Texas. If a measurement of 42 inches or rain in twenty-four hours near Alvin, TX, is accepted, Claudette has the dubious distinction of establishing a United States record for the greatest twenty-four hr rainfall total. This may also be a record for the world's greatest twenty-four hour rainfall occurring over flat terrain.

Claudette began as a tropical wave which moved off the African coast on 11 July. The wave was characterized by strong middle level winds just to the east of the wave axis. The rawinsonde report from Dakar, Senegal, at 1200 GMT, 12 July showed winds of 85 kts at 550 mbs - the strongest winds recorded at any level at that station during the hurricane season thus far.

A tropical depression formed from the wave on 16 July, about 450 miles east of the Leeward Islands. The depression was tracked west northwestward using satellite imagery until 1225 GMT, 17 July, when the first reconnaissance flight into the system measured winds of 45 kts, although the lowest pressure was only 1011 mbs. Even though the minimum pressure did not suggest a tropical storm, the depression was upgraded to Tropical Storm Claudette at 1600 GMT, based on wind measurements, and gale warnings were issued for the Leeward and Virgin Islands and Puerto Rico.

The center crossed the northern Virgin Islands but the heaviest convection extended for a considerable distance to the south and east of the center. Rainfall amounts generally ranged from 1.5 inches in the Virgin Islands to 2.5 inches in the larger islands of the French Antilles. However, there were reports of 7 to 8 inches of rain with flooding in the Point a Pitre to Grand Fonds region of Guadeloupe.

As the center approached Puerto Rico during the night of 17 July, the circulation became disorganized and the system weakened to a tropical depression. Further weakening ensued as the depression crossed the Mona Passage, and upon encountering the island of Hispaniola, the system became a disorganized tropical wave.

As the center skirted along the north coast of Puerto Rico, heavy rains fell over the southern part of the island. Amounts exceeding nine inches were measured in the Ponce area. One man drowned while attempting to cross a swollen river. Property losses were estimated at \$750,000. The metropolitan San Juan area received less than two inches of rain, and storm effects on the city were negligible.

During the period 18-21 July, portions of the wave

crossed the Dominican Republic, Haiti, Jamaica, the Bahamas, Cuba and extreme southern Florida, causing locally heavy rains and gusty winds. As the wave emerged into the southeast Gulf of Mexico, a depression formed on 21 July. Since the depression could be traced to the remnants of Claudette, the original name was retained.

As the depression moved northwestward through the Gulf of Mexico, its lack of organization made tracking difficult. The accompanying "best track" represents a considerably smoothed fit to reconnaissance and satellite position estimates that were frequently at variance with one another, which fell systematically to the north of corresponding reconnaissance fixes during the period. There is some suggestion that satellite images depicted a middle level vorticity center which paralleled the track of the surface center as determined from aerial reconnaissance data.

During the early morning hours of 23 July, an Air Force reconnaissance mission found that winds had reached gale force, and Claudette once again became a tropical storm. Gale warnings were issued from Biloxi, MS, to Freeport, TX, at 1300 GMT. As the storm approached the upper Texas coast, the situation became increasingly complex. The central part of the storm circulation elongated, and there is some evidence that the original center, situated in the southern part of this elongated envelope, weakened while a new center formed to the north. As the original center drifted to the west and dissipated, gale warnings were discontinued during the night of 24 July. However as the new center formed, and offshore oil rigs reported winds increasing to 40 kts, gale warnings were issued at 1430 GMT from Grand Isle, LA to Galveston, TX.

By midday on 24 July, the storm center came under surveillance of radars at Lake Charles, LA, and Galveston, TX. These radar reports showed that the center drifted northward and crossed the coast near the Texas-Louisiana border about 1900 GMT, 24 July. The center passed just north of Beaumont during the evening. It was thought that the predominant northward motion would continue since the storm was embedded in a strong east-west pressure gradient. Based on this reasoning, gale warnings were discontinued along the coast at 2200 GMT, 24 July. However, during the night the motion of the center became slow and erratic. Based on an examination of the surface winds and pressures at Beaumont, Houston, Lufkin and College Station, it appears that the track of the low pressure center described a small counterclockwise loop within the area bounded by these cities.

Since the center remained close to the coast, and the main source of inflow was a confluent band of southerly winds off the warm waters of the northwest Gulf



## TROPICAL STORM CLAUDETTE

of Mexico, the storm did not weaken as expected. Instead, the minimum pressure at Beaumont dipped to 997.8 mbs at 0030 GMT, 25 July, which was the lowest measurement during the life of the storm.

Finally, on 26 July the residual low pressure system weakened as it moved northward, passing just to the east of Waco and Dallas. The low crossed eastern Oklahoma, Missouri, Illinois, Indiana, Ohio and into West Virginia where it merged with a frontal system on 29 July.

As the storm stalled over eastern Texas during the night of 24 July, torrential rains began along the coastal sections of Texas from the Houston-Galveston area to Matagorda. This area of heavy rain coincided with a zone of low level convergence which persisted for about 30 hours. Maximum amounts in excess of thirty inches occurred near Alvin, in Brazoria County and near Sargent, in Matagorda County. A subsequent report received from a cooperative observer located 8.5 miles due west of WSO, Alvin showed that 42 inches of rain fell between 1200 GMT, 25 July and 1200 GMT, 26 July - a United States record for twenty-four

hour rainfall amount. The same station had a storm total rainfall of 45 inches.

No estimate of dollar damage due to flooding is available at this writing. However, it is likely to exceed \$100 million. At least one death in Texas was attributed to Claudette. Minor damage due to tide and wave action occurred along the Louisiana coast, where tides were generally 1.5 to 3.5 feet above normal. Several boats were sunk and homes damaged in Cameron, LA, where about one hundred persons were evacuated.

The highest sustained winds associated with Claudette were 45 kts reported by an oil rig off the central Louisiana coast from 1200 GMT to 1600 GMT 24 July. Oil rigs also reported winds of 40 kts off the upper Texas and Louisiana coasts on 26 July, thirty hours after the storm center moved inland. Winds were estimated at 45 to 55 kts at Cameron at 1915 GMT, 24 July. Air Force reconnaissance reported surface winds of 45 kts at 1225 GMT, 17 July as Claudette originally developed east of the Virgin Islands.

# TROPICAL STORM CLAUDETTE

## Preliminary Report

DAY	TIME Z	LATITUDE	LONGITUDE	MIN. PRES. (mbs)	MAX WIND (kts)	CATEGORY
15	12	12.5	46.3	1014	20	trop disturbance
	18	12.8	48.4	1014	20	
16	00	13.4	50.4	1012	25	trop depression
	06	14.6	52.1	1012	25	
	12	15.7	53.8	1011	30	
	18	16.5	55.5	1011	30	
17	00	17.0	57.2	1011	30	trop storm
	06	17.5	58.8	1011	30	
	12	17.8	60.3	1011	40	
	18	18.0	62.1	1010	40	
18	00	18.2	63.8	1010	40	trop depression
	06	18.3	65.4	1011	30	
	12	18.4	67.0	1011	30	
	18	18.5	68.5	1012	25	
19	00	18.7	69.5	1012	20	trop. disturbance (wave)
	06	18.8	70.5	1012	20	
	12	18.8	71.4	1012	20	
	18	19.0	72.4	1012	20	
20	00	19.0	73.3	1013	20	
	06	19.2	74.7	1013	20	
	12	19.5	76.7	1013	20	
	18	20.0	78.7	1013	20	
21	00	20.6	80.4	1013	20	
	06	21.4	82.2	1013	25	
	12	22.1	83.5	1012	30	
	18	22.8	85.0	1010	30	
22	00	23.5	86.5	1007	30	trop depression
	06	24.0	87.4	1007	30	
	12	24.5	88.5	1007	30	
	18	25.0	89.5	1006	30	
23	00	25.4	90.5	1005	30	trop storm
	06	25.9	91.4	1004	30	
	12	26.4	92.4	1003	35	
	18	26.9	92.9	1003	35	
24	00	27.5	93.4	1003	35	
	06	28.3	93.5	1003	35	
	12	28.8	93.7	1002	45	
	18	29.6	93.9	1000	45	
25	00	30.3	93.9	997	40	trop depression (over-land)
	06	30.3	94.3	998	35	
	12	30.5	94.8	1000	30	
	18	30.5	95.2	1001	30	
26	00	30.2	95.3	1001	30	

# TROPICAL STORM CLAUDETTE

Day	Time	Latitude	Longitude	Min. Pres.	Max Wind	Category
26	06	30.6	95.1	1002	30	trop depression (over land)
	12	30.8	95.4	1003	30	
	18	31.3	96.3	1004	25	
27	00	31.8	96.6	1004	20	
	06	32.7	96.4	1006	20	
	12	34.0	95.9	1007	15	
	18	35.3	95.3	1007	15	
28	00	36.4	94.6	1007	15	
	06	37.8	93.4	1008	15	
	12	38.6	91.0	1009	15	
	18	38.8	88.0	1009	15	
29	00	39.0	85.2	1010	15	
	06	39.0	82.8	1011	15	
	12	39.0	80.2	1011	15	



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

JULY 1979

STATE	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.	
Alabama	2 Stations	103	6+	Scottsboro	52	2	Dadeville	11.94	Hightower	2.73	
Alaska	2 Stations	87	24+	Barrow WSO AP	27	11	Little Fort Walter	17.53	Five Mile	2.36	
Arizona	Chandler	123	29	Fort Valley	29	8+	Arivaca 1 E	9.2	6 Stations	.00	
Arkansas	2 Stations	101	94	2 Stations	54	54	Prescott	11.37	Lake City	2.16	
California	2 Stations	123	194	5 Mile	17	8	Deep Canyon Laboratory	15.58	126 Stations	.00	
Colorado	Holly	103	1+	Spicer	26	31	Stratton	8.78	Boulder	1	
Connecticut	2 Stations	96	14	2 Stations	17	7+	Stevenson Dam	8.88	East Haven Saltonstall	.42	
Delaware	3 Stations	92	28+	Milford 2 WSW	47	8	Middletown 1 WSW	4.89	Newark University Farm	2.10	
Florida	Myakka River State Park	101	3	4 Stations	62	27+	Pensacola FAA AP	20.36	Moore Haven Lock 1	1.45	
Georgia	Lumpkin 2 SE	104	7	2 Stations	49	1	Atkinson 2 E	15.24	Godfrey 3 NE	2.22	
Hawaii	3 Stations	93	24	Mauna Kea Obs III.2	22	1	Puohokamoa 2 343	21.80	25 Stations	.00	
Illinois	2 Stations	116	18+	Stanley	25	11	Malad City	11.16	6 Stations	.00	
Indiana	Du Quoin 4 SE	104	15	2 Stations	42	6+	Mt Carmel	14.26	Antioch 2 SW	1.26	
Indiana	Crane Naval Depot	98	30	Logansport Radio WSL	40	6	Elliston	16.66	Goshen College	1.08	
Iowa	Leon	106	13	Elkader 5 SSW	40	6	Parkersburg	10.03	Mapleton	1.25	
Kansas	Webster Dam	110	12	Brewster	50	20	Highland	10.52	Sublette	1.11	
Kentucky	5 Stations	96	31+	2 Stations	26	7+	Taylorsville	11.94	Fords Ferry Dam 50	2.87	
Louisiana	Bogalusa	112	6	Monroe FAA AP	64	1+	Hackberry 8 SSW	22.01	Oak Grove 2 WSW	2.99	
Maine	2 Stations	94	15	Clayton Lake 2	32	5	West Buxton 2 NNW	5.96	Yackman	1.14	
Maryland	Baltimore WSO CI	96	1	Oakland 1 SE	36	7	Cambridge Wtr Trmt Plant	7.48	Fredrick Police Brks	1.78	
Massachusetts	Chester 2	103	14	Chester 2	33	7	Holyoke	8.84	Edgartown	.98	
Massachusetts	2 Stations	93	24+	2 Stations	31	17+	Isipsum	8.46	Hesperia 4 WSW	.49	
Michigan	Ada	94	9	Tower 3 S	32	5	Waseca Exp Station	9.64	Willmar State Hospital	.86	
Minnesota	Liberty 1 W	102	7+	2 Stations	57	1	Scandard	18.49	Rosedale	2.93	
Missouri	4 Stations	101	15+	Bowling Green 2 NE	47	18	Bloomfield	11.73	Bowling Green 2 NE	.86	
Montana	Thompson Falls Power House	106	14	Polebridge	25	3	Albion 6 NE	5.11	Eureka Ranger Station	1	
Nebraska	2 Stations	105	14+	Agate 3 E	41	15	Moorefield	9.89	Lyman	.55	
Nebraska	Sunrise Manr Las Vegas	116	16+	Spring Valley State Park	26	7	Lake Valley Steward	3.78	Paradise Valley 1 NW	.11	
New Hampshire	2 Stations	95	28+	Mount Washington	27	5	Bradford	7.72	Bethlehem	1.44	
New Jersey	Passaicfield	98	11	3 Stations	26	7+	Princeton Waterworks	7.98	Ringwood	1.14	
New Mexico	3 Stations	103	15+	Dulce	31	18	Duval Potash Mine	6.82	Tohatchi 6 NE	.00	
New Mexico	2 Stations	99	15	Old Forge	32	7	Bolivar	9.17	Lyons Falls	.69	
North Carolina	Willard 4 SW	98	29	Transou	39	6	Highlands	21.48	Butner Filter Plant	1.10	
North Dakota	2 Stations	100	24	Emmons 2 N	35	16	Mandan Exp Station	6.89	Foxholm 7 N	.17	
North Dakota	Painesville 4 SW	94	16	Dorset	37	6	West Manchester 3 SW	10.17	Put in Bay Perry Monument	1.55	
Oklahoma	Great Salt Plains Dam	106	7	Boise City 2 E	42	19	Ialaga	11.53	Chickasaw NRA	.80	
Oregon	Pelton Dam	110	19+	Seaside	17	2	Nehalem 9 NE	2.68	28 Stations	.00	
Puerto Rico	Marcus Hook	98	14+	San Juan 4 NW	31	6	Coatesville 1 SW	10.14	Rushville	1.01	
Puerto Rico	Manati 2 E	97	11	Cerro Maravilla	48	18	San Lorenzo 3 S	15.68	Puerto Real	.70	
Puerto Rico	Providence WSO AP	92	13	Kingston	42	6	Woonsocket	2.76	North Foster 1 E	1.63	
South Carolina	4 Stations	99	15+	Caesars Head	52	8	Pinopolis Dam	10.51	Clark Hill Dam	2.94	
South Dakota	Spearfish 1 W	101	11	Pactola Dam	31	1	Hill City 1 SSE	8.85	Centerville 6 SE	1.56	
Tennessee	Jackson FAA AP	99	4	2 Stations	51	6+	Rockwood 2	14.64	Hewbern	2.74	
Texas	El Paso WSO AP	112	10	Yaleta	47	6	Alvin (Houston Area WSO)	35.70	5 Stations	.00	
Texas	Hanksville	109	27	Thistle 2 SW	26	29	Goffin	1.99	5 Stations	.00	
Vermont	Wernon	98	14	Mount Mansfield	31	5	Cavendish	6.17	South Hero	.67	
Virginia	3 Stations	95	14	Burkes Garden	37	8	Painter 2 W	9.99	Louisa	.90	
Virgin Islands	Truman Field FAA AP	97	28+	Alex Hamilton Field FAA	67	19	Granard	8.29	East End	2.85	
West Virginia	Priest Rapids Dam	110	19	Rainier Paradise Ranger Station	28	7+	Baring	4.42	3 Stations	1	
West Virginia	2 Stations	93	31+	Canaan Valley	32	7+	Hacker Valley	12.26	Franklin 2 NE	2.05	
Wisconsin	Grantsburg	95	1	Newald 4 N	34	5	Brule Ranger Station	6.88	Milwaukee WSO AP	1.06	
Wisconsin	2 Stations	104	13	Darwin Ranch	24	13	Alva 5 SE	5.61	2 Stations	.00	

## CLIMATOLOGICAL DATA

METRIC UNITS

JULY 1979

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation				Wind			No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total			Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total	Snow, ice pellets	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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		Station	Sea level	Average maximum		Average minimum		Average	Departure from normal		Highest	Lowest	Date	No. of days		Average relative humidity		Total	Departure from normal				Greatest in 24 hours	25 mm or more	With thunderstorms	Total	mm	mm	mm	m/s	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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## METRIC UNITS

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## METRIC UNITS

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## METRIC UNITS

JULY 1979

State and Station	Elevation (ground)	Pressure		Temperature							Precipitation								Wind				No. of days (sunrise to sunset)										
		<div><div></div><div>Station</div></div>	Sea level	Average maximum	Average minimum	Average	Departure from normal	Date			No. of days		Average relative humidity	Total	Departure from normal	Greatest in 24 hours	With thunderstorms	Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction			Fastest mile (1.6 kilometers)								
								Highest	Lowest	Date	Min.	Max											Days										
m	mb	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	mm	inches	mm	inches	mm	inches	mm	inches	kph	mph	km/h	mi/h										
NEW YORK SYRACUSE	129	1001.4	1016.2	28.4	15.7	22.1	0.1	33.9	15	8.9	4	7	0	16.1	72	59	-19	16	10	6	0	0	0.9	20	12.5	S 15	8	12	11	5.7	Possible sunshine		
NORTH CAROLINA ASHEVILLE	652	943.8	1019.0	26.9	17.7	22.3	-0.7	38.2	17*	12.2	2	2	0	19.4	89	140	17	30	16	3	0	0	0.4	31	13.0	SS 15	2	10	19	7.8	Cloudy, 8-10		
CAPE MATHERS R	2	1017.3	1017.5	28.8	21.6	25.2	-0.3	31.7	29+	14.4	9	0	0	21.7	81	164	1	39	14	7	0	0	1.1	24	8.0	SS 26+	4	13	14	6.7			
CHARLOTTE	224	970.9	1018.0	29.5	20.1	24.8	-1.1	33.9	31+	15.6	6	9	0	20.0	80	120	1	39	16	9	0	0	0.5	26	10.3	M 15	4	7	20	7.4			
GREENSBORO	173	986.8	1018.1	29.3	19.2	24.3	-0.8	32.8	31+	11.7	8+	8	0	18.9	75	109	-2	69	13	8	0	0	0.9	26	9.4	M 24	2	11	18	7.4			
RALEIGH	132	1002.0	1017.7	29.5	18.7	24.1	-1.2	32.8	27	11.7	8	4	0	19.4	80	123	-6	49	9	8	0	0	0.7	26	9.4	SE 24	3	9	19	7.4			
WILMINGTON	9	1016.6	1018.1	31.9	21.8	26.9	0.0	36.1	14	16.1	8	19	0	21.7	77	72	-14	24	8	11	0	0	0.8	23	10.7	M 4	4	10	17	7.3			
NORTH DAKOTA BISMARCK	505	956.7	1015.6	28.3	13.9	21.2	-0.3	35.0	8	8.3	31+	8	0	13.9	70	87	24	19	13	11	0	0	0.7	16	15.6	NW 23	6	15	10	6.9			
FARGO	279	982.4	1016.5	28.1	16.2	22.2	0.7	33.3	12+	10.6	16	5	0	15.6	69	84	52	8	8	0	0	0	1.5	16	23.7	NW 14	6	9	16	6.7			
MILLISTON	573	947.2	1014.6	28.5	14.1	21.3	0.1	36.1	12	6.7	16	5	0	13.3	63	45	-7	24	10	8	0	0	0	1.2	12	13.4	NW 14	10	11	10	5.8		
OHIO AKRON	308	973.6	1017.6	25.7	15.7	20.7	-1.3	32.2	12	6.1	6	1	0	15.0	73	50	-47	21	10	3	0	0	0	0.8	26	7.6	E 25+	7	12	12	6.8		
CINCINNATI ARBE DB	232	977.9	1017.9	27.7	17.9	22.8	-1.8	32.8	31	9.4	3	3	0	15.0	66	97	-3	24	9	4	0	0	0	1.0	25	10.3	S 21	8	8	15	6.4		
CLEVELAND	237	988.3	1017.4	27.1	16.3	21.7	-0.2	32.8	31	7.2	6	1	0	15.0	66	96	0	49	12	4	0	0	0	0.4	20	8.0	S 22	1	13	16	7.3		
COLUMBUS	247	987.8	1017.4	27.0	16.2	21.7	-0.2	31.1	31	7.2	6	0	0	15.3	60	70	25	97	14	7	0	0	0.4	20	8.0	S 21	2	11					





# CLIMATOLOGICAL DATA

## METRIC UNITS

JULY 1979

State and Station	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)		Sky cover, tenths (sunrise to sunset)															
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average relative humidity	Total	mm	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total		mm	Maximum depth on ground	Snow, ice pellets	Direction	Speed	Resultant speed	Resultant direction	Fastest mile (1.6 kilometers)							
											Max 32 °C or above	Min 0 °C or lower																								
WASHINGTON	122	1000.7	1017.0	25.9	13.4	19.7	1.6	36.7 16	8.3 2	4	0	0	10.6	59	19	1	15	4	0	0	0	0	0	0	0.7	25	8.0	N 16	10	12	9	3.6	84			
	718	931.3	1013.6	29.2	13.4	21.3	0.4	38.9 20	4.4 1	10	0	0	6.1	39	22	11	20	4	1	0	0	0	0	0	1.6	20	13.0	SE 9	18	5	8	3.4	88			
	1206	881.5	1013.6	18.5	8.5	13.5	0.1	29.4 17	-0.6 1	0	1	0	0	0	54	15	24	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	289	975.3	1013.2	32.6	17.0	24.8	0.6	41.7 20	10.0 3	16	0	0	0	0	7	-4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	321	975.3	1013.2	31.7	12.8	22.3	0.8	40.0 19	1.7 2	18	0	0	6.7	39	1	-3	1	2	0	0	0	0	0	0	1.7	30	11.2	SE 21	20	5	6	2.2	87			
WEST INDIES																																				
SAN JUAN P.R.	4	1015.2	1017.8	31.8	25.4	28.6	1.4	35.9 10+	23.9 27+	7	0	0	24.4	78	15.8	4	39	18	7	0	0	0	0	0	3.8	9	13.9	E 31	5	13	13	4.2	77			
WEST VIRGINIA	763	931.3	1017.8	24.4	15.3	19.8	-1.3	28.9 31	6.1 6	0	0	0	17.2	87	124	13	32	17	5	0	0	0	0	0	1.2	23	9.4	SE 2	1	9	21	8.3				
	786	983.4	1018.2	27.8	17.6	22.7	-1.2	32.2 31	8.3 6	1	0	0	17.8	78	131	3	42	18	10	0	0	0	0	0	0.8	23	9.0	SE 23	3	9	19	7.7				
	594	944.9	1018.2	25.3	14.7	20.0	-0.4	30.6 31	4.4 7	0	0	0	0	0	158	3	34	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	252	987.8	1017.4	28.0	18.6	23.3	-0.7	32.8 31	10.6 5	2	0	0	18.3	77	157	51	13	17	8	0	0	0	0	0	0.8	21	7.2	SE 1	1	9	21	8.4				
	187	987.8	1017.4	27.1	17.6	22.4	-1.6	32.8 31	9.4 6	2	0	0	0	0	94	-13	18	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54		
WISCONSIN	208	991.2	1016.6	27.3	15.3	21.3	0.7	32.2 12	7.8 5	1	0	0	15.0	69	90	12	28	8	6	0	0	0	0	0	0.4	27	10.7	NE 16	5	16	10	6.1	69			
	198	992.9	1017.0	28.5	16.1	22.3	-0.4	32.8 12	10.0 6	3	0	0	16.7	75	89	7	37	10	8	0	0	0	0	0.3	18	11.6	SE 3	4	12	15	6.7	65				
	762	985.8	1016.9	28.4	13.6	21.0	-0.2	31.7 15+	5.6 5	0	0	0	15.0	73	71	-24	37	10	8	0	0	0	0	0.4	21	11.6	SE 3	4	12	15	6.7	65				
	705	992.2	1017.3	26.9	16.3	21.6	0.6	32.2 27+	9.4 18	4	0	0	15.0	68	27	-6	16	8	4	0	0	0	0	0	0.2	19	12.1	N 30	7	12	12	5.0	67			
WYOMING	1627	840.2	1013.8	31.6	11.6	21.6	-0.1	36.7 10	7.2 15	14	0	0	6.1	45	31	7	15	9	8	0	0	0	0	0	0.7	25	13.4	SE 1	10	15	6	5.7	67			
	1867	815.4	1014.0	29.1	13.0	21.1	0.4	32.8 14+	9.4 31	5	0	0	7.2	46	44	7	17	13	14	0	0	0	0	0	0.8	23	21.5	NE 30	5	18	8	5.7	67			
	1996	831.7	1013.8	30.5	12.5	21.5	0.1	33.3 10	7.8 7	6	0	0	3.9	37	5	-11	3	3	10	0	0	0	0	0	1.4	23	18.3	NE 6	14	9	8	4.8	82			
	1708	880.5	1014.8	29.3	10.8	20.1	-1.3	36.7 10	6.1 15+	7	0	0	9.4	56	21	-4	18	6	11	0	0	0	0	0	0.8	30	17.4	SE 6	11	14	6	4.8	67			

## (Base 65° F.)

(Base 65° F.)

[illegible]





# STORM SUMMARY

JULY 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				o ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	1 DAMAGE	DEATHS	INJURIES	1 DAMAGE		DEATHS	INJURIES	1 DAMAGE		DEATHS	INJURIES	1 DAMAGE		DEATHS	INJURIES	1 DAMAGE		DEATHS	INJURIES	1 DAMAGE		DEATHS	INJURIES	1 DAMAGE	
								PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS			PROP.	CROPS
Alabama	5	6		4	5		1	3				4	2			4										2	6		
Alaska										17		5	2			5											6		
Arizona	1	1						6	2			2	2	2		1	6										4		
California																									1				
Colorado	21	11		4	1	25	7	5		1	4		2	2		2									1				
Connecticut																													
Delaware																													
Florida	5	6		6								5	2	10		4													
Georgia				5						2	4	2	1	7		2													
Hawaii												2																	
Idaho												5	2			4											4	3	
Illinois	1	1		5			2	2				5	2		9										2	1	5	2	
Indiana	3	5		4								5	2		3	5										8	2		
Iowa	9			5			5	6		1	6			1	4														
Kansas	3	3					6	6		1	6	5			4												6	5	
Kentucky	1	1		5																					4		7	4	
Louisiana										1	2	6	2	1	5												2	2	
Maine															3														
Maryland & D.C.									4					1	3	5	1										4		
Massachusetts															2	5												3	
Michigan															5													6	
Minnesota								5	7			5	4														4		
Mississippi												4		1	6	5											6	4	
Missouri								3	4			5	3			5											5		
Montana																													
Nebraska	6			1			6	8				6	5			5	3										4	2	
Nevada																											4		
New Hampshire														2	1	2	2												
New Jersey																													
New Mexico	4	3		5			5	3						2	4														
New York	1	1										4	3		4												5	2	
North Carolina																													
North Dakota	2	3						4	6			5	5		3	5											5	6	
Ohio	1	1		5								05	3			4											2	2	
Oklahoma	2	2		5			5	3				6	5	1	4	5											6	5	
Oregon												2	2															3	2
Pennsylvania												4			1	5												6	4
Puerto Rico																									1		06	C	
Rhode Island																3													
South Carolina		1		1											1	4												5	
South Dakota	12			6				2	5			3	5	1															
Tennessee												4	2	1	5												1	6	2
Texas	13			5			6	6		2	6	2		4	1	2	2								1	1	9	2	
Utah																													
Vermont																													
Virginia	1	1		5			3	3				4			1	5										2	4	7	5
Virgin Islands																													
Washington	1	1																										5	
West Virginia	1	1		1			3	2				1	2			2										2	6	2	
Wisconsin	2	1		3				2	5			2		2		5												5	2
Wyoming	15	7	1	43	7		07	C				05	C	1														5	



## Average monthly values

1. 1. 1.

[illegible]



## Average monthly values

JULY 1979

DODGE CITY, KS 925 MB										EL PASO, TX 682 MB										ELY, NV 611 MB										EMPALME, MEXICO 1009 MB										FAIRBANKS, AK 997 MB									
SFC	31	791	19.4	15.7	19	2.6	31	1,193	22.8	11.5	09	4	31	1,908	11.8	-3.0	19	3.3	31	12	27.1	22.3	12	1.3	22	135	13.6	8.3	33	7																			
1000																																																	
950																																																	
900	31	1,027	21.8	15.0	21	5.3		1,515	23.4	10.4	13	1.5	31	2,025	17.2	-1.1	19	3.1	31	1,025	25.9	11.6	13	2.5	22	1,000	12.0	3.6	26	2.3																			
850	31	5,524	27.7	19.4	28	5.5	31	2,043	20.9	7.8	16	1.6	31	2,025	17.2	-1.1	19	3.1	31	1,524	23.2	10.2	12	2.0	22	5,649	17.8	23.1	1.9																				
800	31	2,048	18.4	6.6	23	4.0	31	2,559	17.4	4.9	16	1.8	31	2,053	19.9	8.2	12	1.9	31	1,025	25.9	11.6	13	2.5	22	1,000	12.0	3.6	26	2.3																			
750	31	2,559	15.1	3.5	25	2.5	31	3,183	12.7	2.5	23	.9	31	3,159	12.5	-5.2	22	4.0	31	3,190	12.7	7.1	11	2.2	22	3,047	-2.3	-7.3	20	3.4																			
700	31	3,178	10.7	-4	27	2.0	31	3,801	8.2	-1.2	20.5	.2	31	3,776	7.9	-6.2	22	5.5	31	3,808	8.8	-1.2	10	3.4	22	3,633	-5.5	-11.6	20	3.8																			
650	31	3,792	6.3	-3.2	27	2.7	31	4,457	3.1	-5.6	0.4	2.2	31	4,429	2.5	-11.5	22	6.7	31	4,465	3.6	-4.3	14	2.4	22	4,257	-9.0	-17.4	20	4.1																			
600	31	4,443	1.9	-8.0	28	3.6	31	5,156	-1.1	-9.5	26	3.3	31	5,125	-1.3	-15.9	22	6.7	31	5,156	-1.9	-9.9	16	5.2	22	4,926	-13.0	-21.0	20	4.6																			
550	31	5,140	-2.7	-14.0	29	3.9	31	5,908	-6.7	-16.8	25	2.8	31	5,872	-6.2	-21.9	23	6.8	31	5,908	-6.7	-16.8	25	3.5	22	5,649	-17.8	-28.6	19	4.0																			
500	31	5,885	-5.9	-18.0	30	4.2	31	6,724	-11.5	-20.5	24	2.4	31	6,682	-13.8	-27.3	24	8.3	31	6,740	-10.2	-22.2	0.4	1.1	20	6,419	-23.0	-33.4	19	5.2																			
450	31	7,589	-18.9	-28.2	28	7.5	31	7,617	-17.5	-28.7	31	3.2	31	7,566	-20.1	-33.9	25	10.2	31	7,638	-16.1	-28.7	0.3	.9	20	7,272	-29.2	-39.2	18	5.6																			
400	31	8,576	-25.2	-35.8	29	8.5	31	8,607	-24.3	-35.7	30	3.4	31	8,594	-27.8	-41.1	25	12.0	31	8,633	-23.0	-35.1	0.3	.4	20	8,215	-36.4	-44.2	18	6.0																			
350	31	9,678	-33.7	-43.1	28	10.9	30	9,708	-33.0	-44.5	29	5.1	31	9,630	-36.2	-47.5	25	14.7	31	9,741	-31.3	-42.6	18	.7	20	9,263	-46.6	-56.6	18	6.6																			
300	30	10,926	-43.7		28	11.4	30	10,968	-43.0	-50.0	26	6.4	30	10,872	-45.3	-50.3	25	17.1	30	11,006	-41.5	-49.0	20	2.0	20	10,464	-51.5	-60.0	20	4.6																			
250	30	12,180	-50.4		22	12.8	30	12,330	-50.4		29	10.8	30	12,331	-54.6		26	17.0	30	12,482	-53.0		25	3.5	20	12,913	-57.2		22	4.9																			
200	30	13,375	-59.0		10	13.8	30	13,375	-59.0		28	11.3	30	13,179	-59.1	-59.1	26	16.7	30	13,375	-59.1	-59.1	25	.4	20	12,787	-68.6		22	4.3																			
150	29	14,195	-61.9		28	11.8	30	14,226	-65.2		29	8.7	30	14,143	-61.2		26	14.9	30	14,263	-65.4		25	.4	20	13,801	-68.6		21	3.2																			
125	29	15,314	-65.2		28	8.1	30	15,324	-69.1		29	4.6	30	15,271	-63.1		26	9.8	28	15,377	-70.1		25	1.0	20	14,999	-69.1		21	3.0																			
100	29	16,659	-66.1		28	2.7	30	16,651	-70.7		06	1.3	30	16,639	-64.2		25	3.8	28	16,696	-71.8		08	4.9	20	16,466	-68.6		21	2.4																			
80	29	18,028	-63.5		07	1.6	30	17,985	-67.1		01	5.5	30	18,010	-62.4		14	.9	25	18,024	-67.7		09	1.1	19	17,933	-68.6		17	1.2																			
70	29	18,854	-61.1		08	3.6	29	18,798	-64.3		03	7.9	29	18,838	-64.6		10	2.6	25	18,834	-64.6		09	10.8	19	18,618	-68.3		15	1.6																			
60	29	19,816	-59.1		08	5.9	29	19,747	-61.5		09	10.2	30	19,695	-57.8		25	7.6	25	19,748	-64.6		09	1.1	19	19,830	-61.1		13	0.7																			
50	29	20,969	-55.6		09	7.9	27	20,888	-57.4		09	12.6	30	20,962	-55.4		09	7.0	23	20,924	-57.7		09	15.4	19	21,035	-47.2		11	2.1																			
40	29	22,400	-53.0		09	9.4	27	22,309	-58.4		09	13.7	30	22,394	-53.0		09	8.0	21	22,346	-54.5		09	16.4	18	22,515	-46.5		09	3.9																			
30	29	24,269	-49.6		09	10.7	25	24,165	-51.1		09	14.8	28	24,266	-49.7		09	10.5	19	24,205	-51.5		09	17.6	17	24,427	-45.1		09	4.6																			
25	27	25,469	-47.8		09	11.7	25	25,354	-48.4		09	15.9	29	25,466	-48.0		09	11.2	18	25,399	-48.7		09	18.8	16	25,649	-48.3		08	4.7																			
20	27	26,951	-45.5		09	13.5	23	26,924	-44.4		09	17.6	28	26,944	-45.5		09	12.2	14	26,868	-46.2		09	20.4	16	27,157	-41.0		09	6.8																			
15	27	28,079	-43.0		09	15.4	17	28,079	-43.0		09	20.5	26	28,040	-43.1		09	12.2	8	28,043	-43.8		09	23.1	17	28,173	-37.3		09	7.9																			
10	27	29,893	-37.6		09	18.9	19	29,893	-41.0		09	24.9	12	29,893	-41.0		09	12.2	2	29,882	-41.0		09	26.1	13	31,351	-32.0		08	9.3																			

# RAWINSONDE DATA

Average monthly values

FLINT, MI 989 MB										FLATBUSH, MI 935 MB										GRAND JUNCTION, CO 883 MB										HEAT FALLS, MT 992 MB									
Standard pressure Surface										Standard pressure Surface										Standard pressure Surface										Standard pressure Surface									
No. of observations										No. of observations										No. of observations										No. of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction										Direction										Direction										Direction									
Speed m/s										Speed m/s										Speed m/s										Speed m/s									
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind									
No. of observations										No. of observations										No. of observations										No. of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Direction										Direction										Direction										Direction									
Speed m/s										Speed m/s										Speed m/s										Speed m/s									
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind									
570	31	216	16.1	14.8	21	1.1	31	656	16.2	10.3	1.2	1.1	31	1,472	19.4	6.4	1.2	31	1,118	14.1	6.6	1.2	1.5	31	575	1.4	11.4	1.4	1.5										
1000																																							
950	31	581	18.4	11.6	27	2.1	31	1,032	19.6	9.4	1.2	1.2	29	1,008	20.8	5.3	1.2	31	1,110	16.4	7.4	23	1.4	31	1,038	16.2	4.4	1.4											
900	31	1,043	16.0	8.9	29	2.3	31	1,512	17.4	5.7	1.2	1.7	29	1,008	20.8	5.3	1.2	31	1,110	16.4	7.4	23	1.4	31	1,038	16.2	4.4	1.4											
850	31	1,527	13.0	6.3	29	4.5	31	1,512	17.4	5.7	1.2	1.7	29	1,008	20.8	5.3	1.2	31	1,110	16.4	7.4	23	1.4	31	1,038	16.2	4.4	1.4											
800	31	7,035	10.5	4.9	29	4.5	31	1,512	17.4	5.7	1.2	1.7	29	1,008	20.8	5.3	1.2	31	1,110	16.4	7.4	23	1.4	31	1,038	16.2	4.4	1.4											
750	31	2,570	7.9	-3.4	29	4.7	31	2,569	10.0	-9.26	3.0	4.0	31	2,488	18.0	-0.19	2.2	31	2,563	9.9	-1.5	26	4.7	31	2,488	7.4	-3.4	30	4.1										
700	31	1,136	5.2	-8.3	29	5.4	31	1,318	6.1	-3.9	27	4.5	31	1,169	13.6	-3.3	2.4	2.8	31	1,132	5.7	-4.4	26	4.5	31	1,129	4.4	-3.4	30	5.6									
650	30	3,736	1.9	-10.2	28	5.9	31	3,742	2.4	-7.3	27	6.2	31	3,788	8.7	-6.2	2.6	4.1	31	3,735	1.5	-9.5	26	7.1	31	3,735	1.5	-12.3	30	5.6									
600	30	4,378	-1.7	-14.8	28	6.7	31	4,384	-2.1	-11.7	27	6.6	31	4,474	3.2	-9.3	2.6	5.1	31	4,474	-2.8	-15.0	26	7.9	31	4,370	-1.7	-16.3	29	6.3									
550	30	5,085	-5.6	-21.5	28	7.3	31	5,070	-6.4	-15.5	27	9.0	31	5,101	-2.9	-12.2	2.6	6.9	31	5,088	-7.5	-18.4	25	11.4	31	5,070	-5.6	-21.2	29	7.1									
500	30	5,805	-10.2	-23.8	28	8.8	31	5,807	-11.8	-21.6	27	9.8	31	5,848	-8.7	-18.0	2.6	8.9	31	5,793	-12.5	-25.3	24	12.4	31	5,795	-10.7	-24.7	29	8.2									
450	30	6,610	-15.4	-28.6	28	9.9	31	6,607	-16.8	-28.8	27	10.6	31	6,697	-13.6	-25.9	2.6	8.1	30	6,588	-17.9	-29.4	23	11.4	31	6,598	-16.0	-30.3	29	9.2									
400	30	7,489	-21.3	-33.9	28	10.2	31	7,481	-22.9	-34.5	27	12.0	31	7,562	-19.7	-33.7	2.7	9.4	30	7,458	-24.1	-35.3	25	11.7	31	7,474	-22.3	-34.4	29	11.1									
350	30	8,464	-28.3	-41.0	28	12.9	31	8,448	-30.7	-41.6	27	14.2	31	8,583	-26.6	-40.4	2.7	12.3	30	8,420	-31.3	-42.6	26	15.1	31	8,444	-28.3	-41.4	29	11.1									
300	30	9,548	-36.6	-47.9	28	15.6	31	9,522	-38.9	-49.8	26	15.1	31	9,655	-34.9	-47.1	2.6	14.9	30	9,541	-39.6	-49.9	29	17.4	31	9,541	-37.1	-47.8	26	14.9									
250	30	10,787	-45.4		28	19.0	31	10,747	-48.5		26	16.3	31	10,901	-46.8		2.6	16.3	30	10,781	-49.8		29	18.9	31	10,781	-47.9		26	16.3									
200	30	12,248	-53.5		29	22.3	31	12,192	-54.4		27	17.5	31	12,361	-54.5		2.6	17.2	30	12,156	-54.6		26	20.0	31	1,171	-54.1		21.6										
175	30	13,102	-55.9		29	21.1	31	13,094	-53.9		27	16.8	31	13,109	-58.0		2.6	16.1	30	13,132	-53.8		29	17.0	31	13,072	-56.3		29	21.3									
150	30	14,079	-57.6		29	18.5	31	14,071	-51.5		26	15.3	30	14,173	-61.0		2.6	14.0	30	14,004	-53.7		29	15.0	31	14,051	-56.6		29	16.3									
125	30	15,224	-59.7		28	12.5	31	15,209	-54.9		27	11.5	30	15,298	-64.6		2.7	10.0	30	15,171	-55.4		29	11.5	31	15,204	-56.4		29	12.4									
100	30	16,617	-60.1		29	8.5	31	16,530	-56.5		28	6.7	30	16,660	-64.6		2.7	6.7	30	16,586	-57.2		27	6.4	31	16,606	-57.4		29	8.0									
75	30	18,009	-58.3		29	31	18,049	-57.7		28	11.3	30	18,025	-62.2		2.6	11.3	30	18,016	-55.3		29	11.7	31	18,009	-57.6		29	31										
50	29	18,653	-56.8		31	1.6	31	18,902	-54.5		29	1.0	30	18,849	-60.2		1.0	2.7	30	18,850	-55.5		31	1.1	30	18,653	-55.9		29	1.6									
25	29	19,833	-55.3		05	2.1	31	19,851	-51.5		08	1.6	29	19,875	-57.2		09	5.0	30	19,836	-54.1		08	1.4	29	19,844	-54.2		03	1.6									
0	29	21,003	-53.1		08	4.0	31	21,068	-51.8		08	4.9	29	20,983	-55.0		09	6.8	29	21,009	-52.6		09	5.1	29	21,018	-52.5		09	7.2									
0	28	22,449	-51.1		08	6.0	31	22,524	-49.4		09	4.5	29	22,418	-52.1		09	7.9	29	22,458	-50.2		08	4.4	28	22,467	-50.5		09	4.7									
0	28	24,334	-48.0		09	7.4	30	24,418	-47.6		05	6.0	29	24,204	-49.3		09	9.9	29	24,348	-47.4		09	6.6	27	24,358	-47.7		09	7.2									
0	25	25,540	-43.6		07	8.7	30	25,628	-45.8		06	7.9	29	25,403	-47.7		09	10.4	29	25,557	-45.7		07	7.9	25	25,543	-44.4		07	8.0									
0	27	27,036	-41.6		08	9.9	30	27,171	-42.9		09	8.0	27	26,976	-45.5		09	11.7	28	27,033	-42.8		09	9.1	26	27,047	-43.3		09	9.5									
0	15	28,975	-41.0		08	11.9	27	29,081	-39.6		09	9.8	25	28,912	-42.0		09	13.6	27	29,005	-40.3		08	9.8	21	29,004	-40.4		09	11.0									
0	10					11	31	29,732	-35.5		09	17.2	19	31,680	-37.5		09	17.2	18	31,790	-35.9		09	12.6	14	31,780	-36.4												



## Average monthly values

JULY 1979

- 24 -



## Average monthly values

## Average monthly values

SALT LAKE CITY, U

- 26 -



## Average monthly values

JULY 1975

- 27 -



# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

JULY 1979

Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
HAUNA LOA OBSERVATORY, HI										TUCSON, AZ									
Air mass										Air mass									
1.34	1.26	1.13	1.00	*	1.00	1.13	1.26	1.34		1.34	1.26	1.13	1.00	*	1.00	1.13	1.26	1.34	
1.13	1.21	1.30	1.40	1.52	1.57	1.26	1.17	1.11	1.13	1.21	1.30	1.40	1.52	1.57	1.26	1.17	1.11	1.13	1.13
1.11	1.18	1.28	1.39	1.51	1.56	1.24	1.15	1.09	1.11	1.18	1.28	1.39	1.51	1.56	1.24	1.15	1.09	1.11	1.11
1.13	1.21	1.30	1.41	1.53	1.58	1.26	1.17	1.11	1.13	1.21	1.30	1.41	1.53	1.58	1.26	1.17	1.11	1.13	1.13
1.15	1.22	1.31	1.41	1.54	1.59	1.28	1.19	1.13	1.15	1.22	1.31	1.41	1.54	1.59	1.28	1.19	1.13	1.15	1.15
1.12	1.21	1.29	1.40	1.52	1.57	1.25	1.16	1.10	1.12	1.21	1.29	1.40	1.52	1.57	1.25	1.16	1.10	1.12	1.12
1.14	1.21	1.30	1.41	1.53	1.58	1.27	1.18	1.12	1.14	1.21	1.30	1.41	1.53	1.58	1.27	1.18	1.12	1.14	1.14
1.16	1.22	1.31	1.42	1.54	1.59	1.29	1.20	1.14	1.16	1.22	1.31	1.42	1.54	1.59	1.29	1.20	1.14	1.16	1.16
1.17	1.25	1.31	1.42	1.54	1.59	1.30	1.21	1.15	1.17	1.25	1.31	1.42	1.54	1.59	1.30	1.21	1.15	1.17	1.17
1.16	1.21	1.30	1.40	1.52	1.57	1.28	1.19	1.13	1.16	1.21	1.30	1.40	1.52	1.57	1.28	1.19	1.13	1.16	1.16
1.14	1.21	1.29	1.39	1.51	1.56	1.26	1.17	1.11	1.14	1.21	1.29	1.39	1.51	1.56	1.26	1.17	1.11	1.14	1.14
1.14	1.22	1.29	1.39	1.52	1.57	1.27	1.18	1.12	1.14	1.22	1.29	1.39	1.52	1.57	1.27	1.18	1.12	1.14	1.14
1.11	1.17	1.27	1.38	1.52	1.57	1.24	1.15	1.09	1.11	1.17	1.27	1.38	1.52	1.57	1.24	1.15	1.09	1.11	1.11
1.13	1.26	1.35	1.46	1.60	1.65	1.26	1.17	1.11	1.13	1.26	1.35	1.46	1.60	1.65	1.26	1.17	1.11	1.13	1.13
1.19	1.28	1.35	1.49	1.58	1.63	1.32	1.23	1.16	1.19	1.28	1.35	1.49	1.58	1.63	1.32	1.23	1.16	1.19	1.19
1.18	1.30	1.37	1.48	1.57	1.62	1.31	1.22	1.15	1.18	1.30	1.37	1.48	1.57	1.62	1.31	1.22	1.15	1.18	1.18
1.10	1.20	1.28	1.40	1.55	1.60	1.29	1.20	1.14	1.10	1.20	1.28	1.40	1.55	1.60	1.29	1.20	1.14	1.10	1.10
1.10	1.21	1.29	1.41	1.56	1.61	1.30	1.21	1.15	1.10	1.21	1.29	1.41	1.56	1.61	1.30	1.21	1.15	1.10	1.10
1.18	1.27	1.36	1.47	1.58	1.63	1.32	1.23	1.16	1.18	1.27	1.36	1.47	1.58	1.63	1.32	1.23	1.16	1.18	1.18
1.21	1.30	1.38	1.49	1.58	1.63	1.35	1.26	1.19	1.21	1.30	1.38	1.49	1.58	1.63	1.35	1.26	1.19	1.21	1.21
1.16	1.24	1.31	1.42	1.54	1.59	1.30	1.21	1.15	1.16	1.24	1.31	1.42	1.54	1.59	1.30	1.21	1.15	1.16	1.16
1.16	1.24	1.32	1.42	1.54	1.59	1.31	1.22	1.16	1.16	1.24	1.32	1.42	1.54	1.59	1.31	1.22	1.16	1.16	1.16
1.18	1.24	1.33	1.44	1.55	1.60	1.33	1.24	1.17	1.18	1.24	1.33	1.44	1.55	1.60	1.33	1.24	1.17	1.18	1.18
Average	1.13	1.23	1.31	1.44	1.55	1.32	1.23	1.16	1.13	Average	1.13	1.23	1.31	1.44	1.55	1.32	1.23	1.16	1.13
1.13	1.23	1.31	1.44	1.55	1.60	1.32	1.23	1.16	1.13	1.13	1.23	1.31	1.44	1.55	1.60	1.32	1.23	1.16	1.13

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's	217	218	218	173	141	77	76	59	218	220	250	46	92	51	47	103	221	107	207	219	70	188	143	186	52	15	177	162	146	56	---	143

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

$$1 \text{ foot} = 0.3048 \text{ meters}$$

$$\text{°F.} = 9 \times \text{°C} + 32$$

$$5$$

$$1 \text{ inch} = 25.4 \text{ millimeters}$$

$$1 \text{ mile per hour} = 0.447 \text{ meters per second}$$

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- † No Storm Data Report received for this State.
- Report incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

CI	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	"	Moderate Haze-indeterminable
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN	Blowing Sand	G	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D	Dew Point	H	Haze	KI	Intense Smoke		
I	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

## DESCRIPTION OF CHARTS

CHART I. A. NORMAL DAILY AVERAGE TEMPERATURE ( $^{\circ}\text{F}$ . 1941-70) FOR MONTH. B. TEMPERATURE DEPARTURE FROM 30-YEAR MEAN ( $^{\circ}\text{F}$ . 1941-70) FOR MONTH. Chart I-A is reproduced from monthly normals maps prepared at the National Climatic Center. Chart I-B is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin," a publication of Environmental Data Service.

CHART II. A. TOTAL PRECIPITATION. Chart II. A. is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin."

CHART II. B. PERCENTAGE OF NORMAL PRECIPITATION. Chart II. B. is a reproduction of monthly chart appearing in "Weekly Weather and Crop Bulletin."

CHART III. TRACKS OF CENTERS OF ANTICYCLONES AT SEA LEVEL.

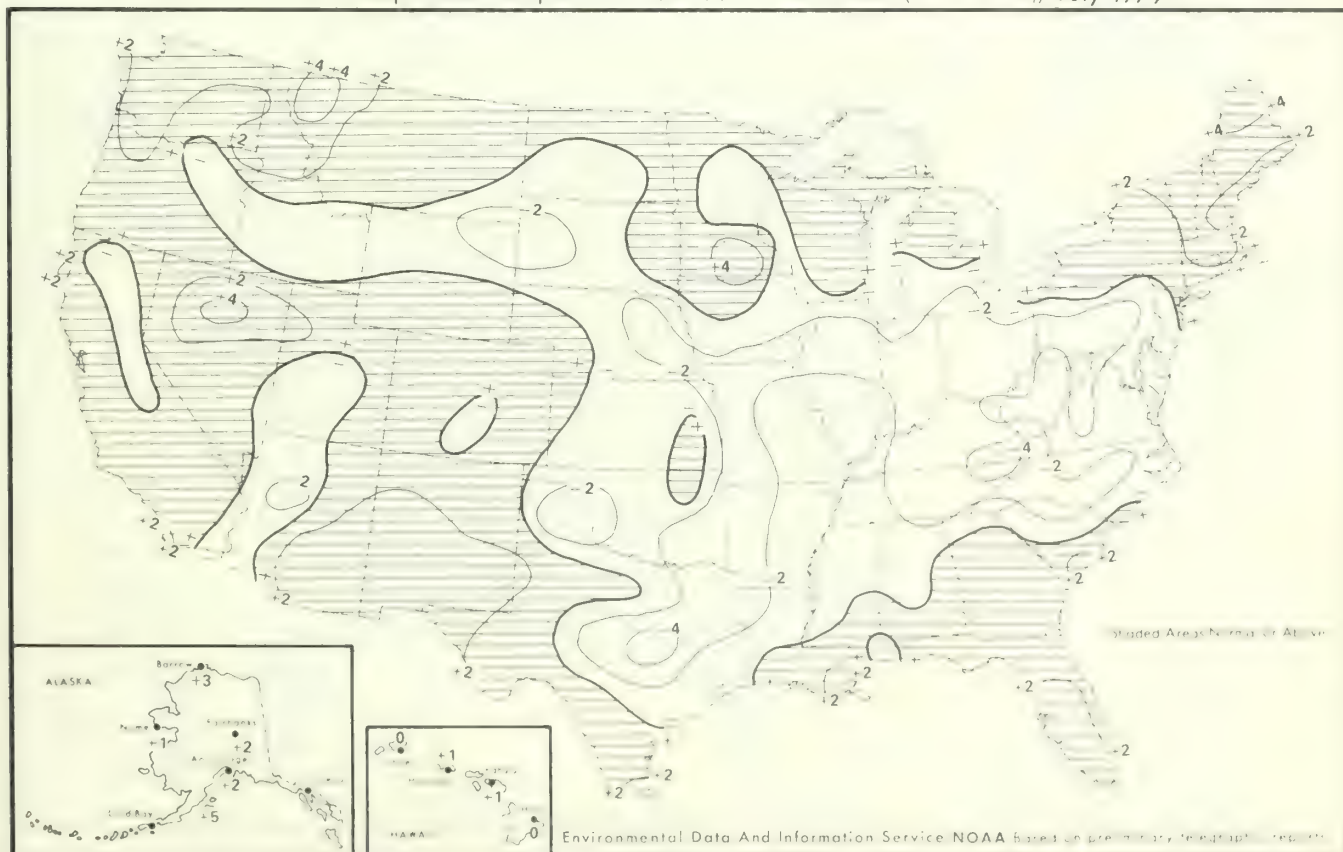
CHART IV. TRACKS OF CENTERS OF CYCLONES AT SEA LEVEL. Centers which can be identified for 24 hours or more are tracked in these charts. Semi-permanent features such as the Great Basin and Pacific Highs and Colorado and Mexico Lows are not shown. The 7:00 a.m., e.s.t., positions are shown by open circles, with the intermediate positions at 6-hour intervals shown by X's. The date is given above the circle and the central pressure to whole millibars below. A dashed track indicates a regeneration rather than actual movement to the next position. Squares indicate position of stationary center for period shown beside it.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), July



B. Temperature Departure from 30 - Year Mean (°F. 1941-70), July 1979



Environmental Data And Information Service NOAA based on preliminary telegraph reports

Chart II. A. Total Precipitation (Inches), July 1979



B. Percentage of Normal Precipitation, July 1979

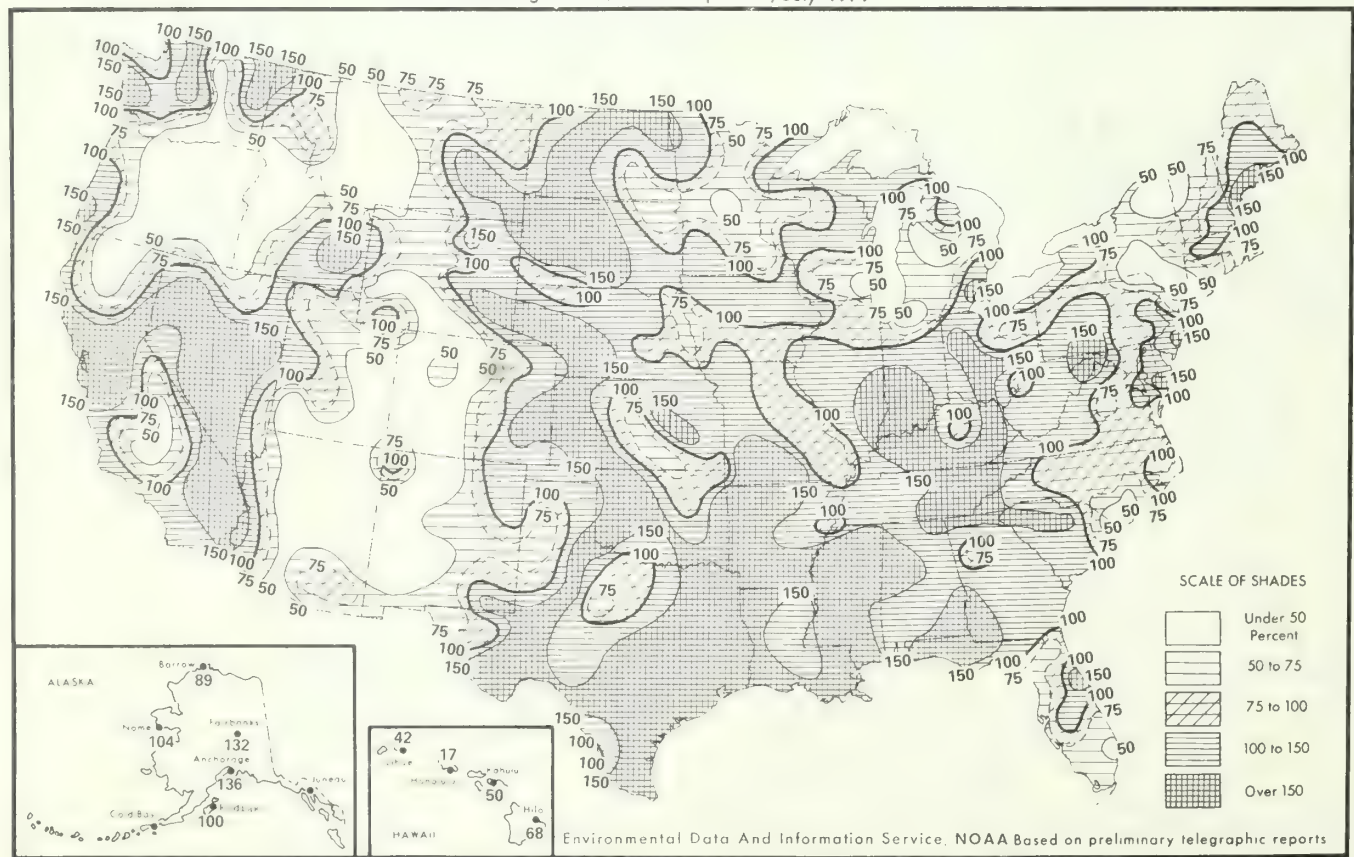
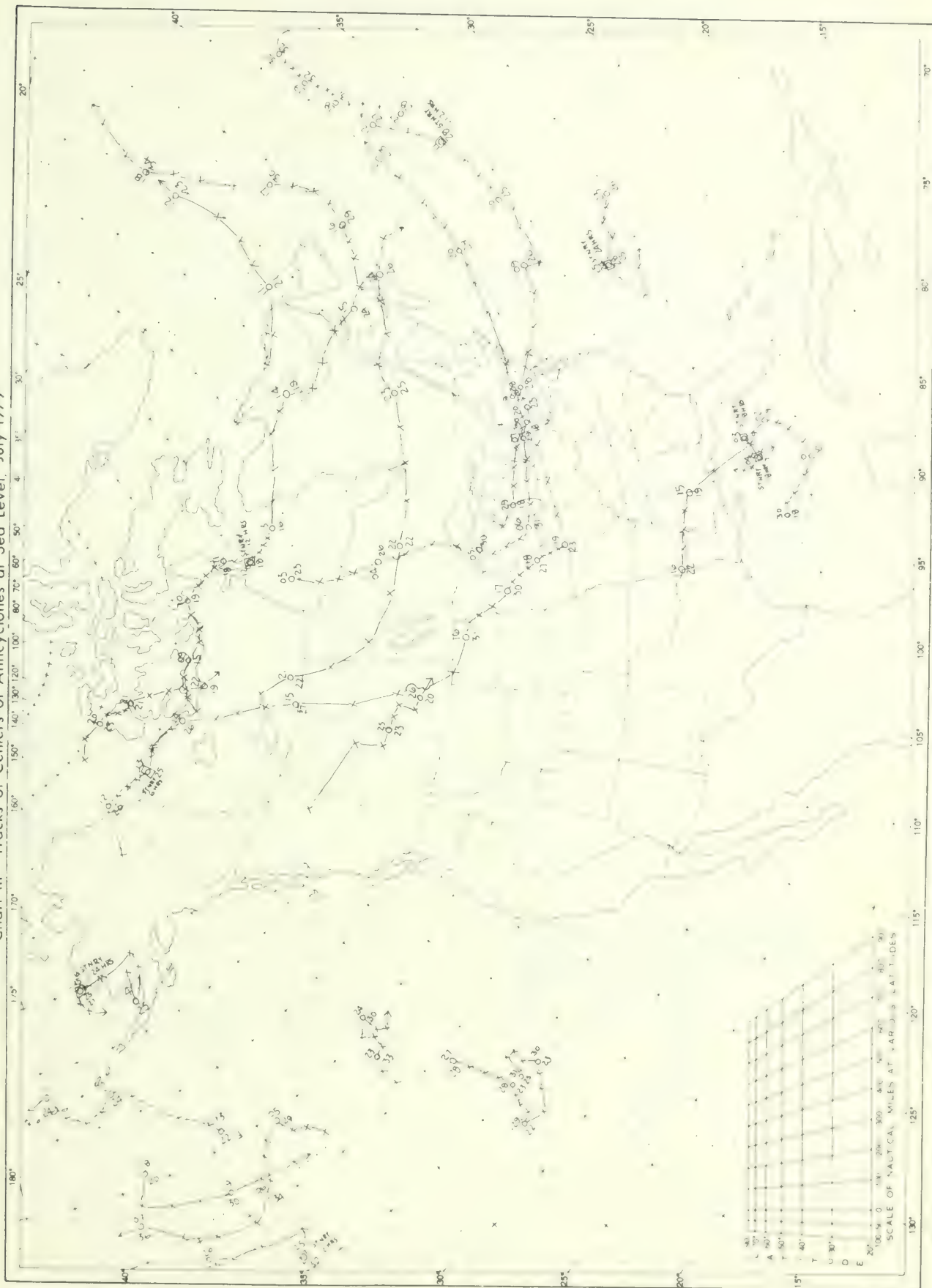




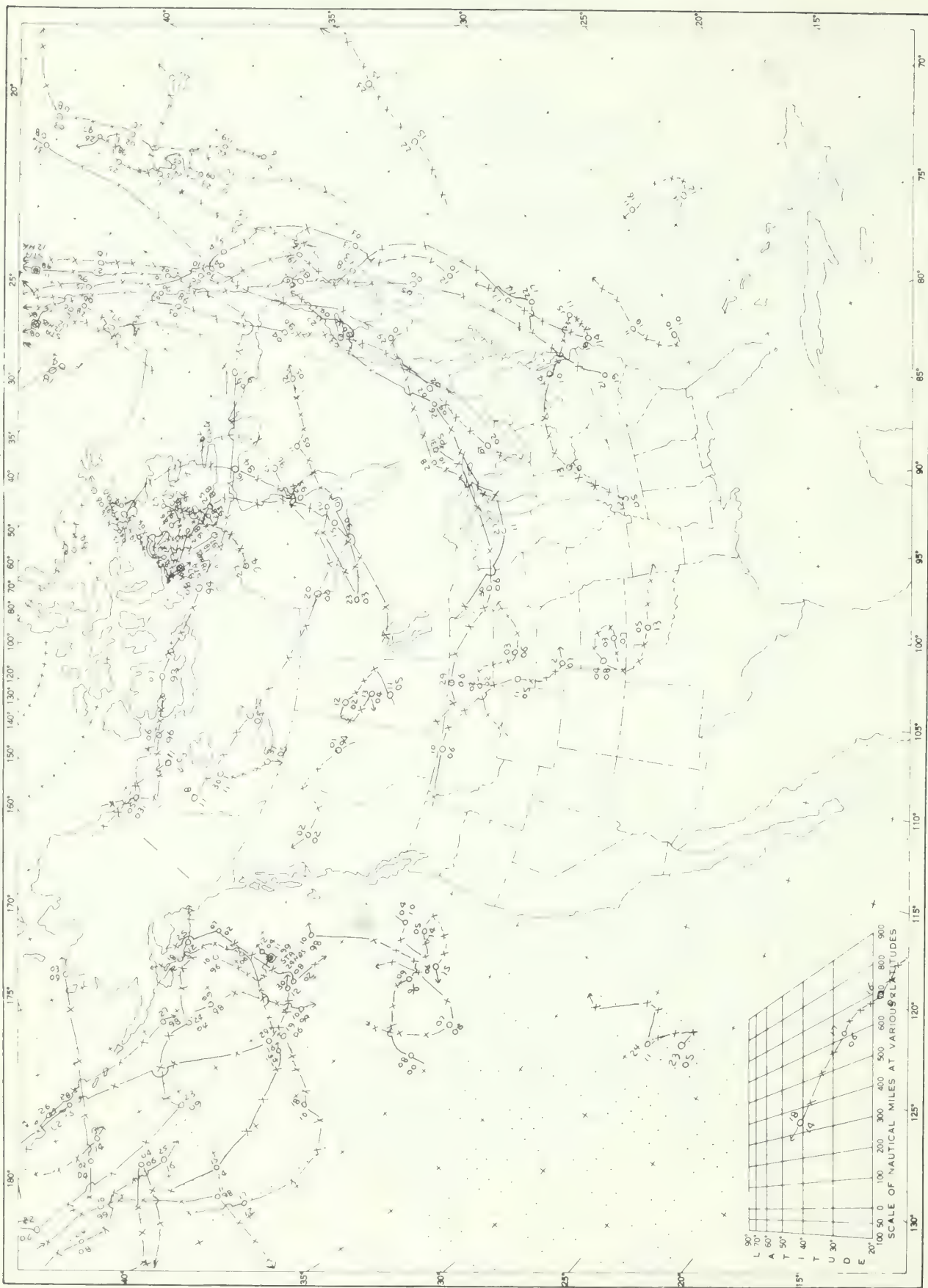
Chart III Tracks of Anticyclones at Sea Level, July 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. 'X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart IV. Tracks of Cyclones at Sea Level, July 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

AUGUST 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** August was a month of many contrasts. Some areas reported both record high and low temperatures. The season's first frost occurred in the northern tier from North Dakota to New England. Some of the heaviest precipitation of the month fell in the northern part of Iowa and in Ohio where as much as three times the normal amount was recorded.

A typical summer rainfall pattern prevailed from July 30 to August 5 as warm, moist air from the Gulf of Mexico flowed northward causing showers and thunderstorms in nearly all areas east of the Rockies. Seasonal showers edged westward into southern New Mexico and Arizona. Temperatures ranged cooler than normal in the northern and southern Plains, but most of the Nation was near or above normal.

August showers began in earnest in the Southwest, Plateau, and central Rockies during the week of the 6th-12th. The showers extended northward into southern Idaho where numerous fires burned dry forests. East of the Rockies, the influx of warm air continued into the early part of the week, but cooler air from Canada covered the area by the end of the week. Record high temperatures early in the week were followed by record low readings. Frost was reported in northern Minnesota and Michigan.

The cool air enveloped nearly all of the Nation early in the week of the 13th-19th and frost spanned the Canadian border from North Dakota through New England. Showers and thunderstorms were moderate to heavy throughout the Southwest, Plateau, and northward into the State of Washington. The fire danger lowered in the West. Heavy showers also extended into the central Rockies and eastward into the upper Midwest. Flooding plagued northern Nebraska, Iowa, and Illinois. Moderate to heavy rain fell along the Gulf Coast.

The week of the 20th-26th was one of very heavy rain in some areas. Six to 8 inches aggravated the flooding in parts of Iowa and Minnesota. The lower Mississippi Valley, northern Alabama, and Georgia also reported heavy rain. Isolated heavy thunderstorms occurred throughout the week from northern Texas through the Plains. A succession of cool air surged into the central portion of the Nation triggering heavy downpours. Storm systems formed in the central United States and moved eastward. Most of the cold air remained in Canada producing some light frost near the North Dakota border. Average temperatures for the week were 3 to 6° colder than normal in the central Rockies and eastern slopes, and about 3° warmer than normal east of the Appalachians and on the West Coast.

Frequent rains fell from the eastern Great Plains to the Atlantic Coast from the 27th to the end of the month. Heavy amounts soaked eastern Kansas, western Missouri, and eastern Oklahoma where thunderstorms were most frequent at midweek. Early in the week, a tropical storm in the Gulf of Mexico dumped 5 or more inches of rain on Texas's southern tip. The storm stalled off the Mexican Coast and slowly dissipated but still brought moderate rain all along the Texas Gulf Coast. At the end of the month, another tropical storm was moving toward the Texas Coast, while Hurricane David brought rampaging winds and torrential rains to Puerto Rico on its westward trek.

Most of the Nation ranged warmer than normal during the last week of August. The area from Nebraska eastward through Ohio averaged 3 to 6° warmer than normal.



# HURRICANE DAVID

August 25 - September 7, 1979

National Hurricane Center, NOAA  
Miami, Florida

The following is a summary of the major meteorological events that occurred in connection with Hurricane David. Many of the descriptions of damage and fatalities are extracted from a report authored by Dick DeAngelis of the Environmental Data and Information Services (EDIS) NOAA.

A "best track" is attached. This is a listing of position coordinates every six hours, as well as the intensity parameters of minimum central pressure and maximum sustained wind speed. The best track is based on analysis of all available data.

David may be regarded as a typical "Cape-Verde" hurricane. It moved off of the African coast in late August and a mostly smooth path was followed around the periphery of the Atlantic subtropical high pressure ridge.

This trajectory resulted in an impact on a large number of people. David was a continual threat to populated land areas from the time it approached the eastern Caribbean on August 29th until it lost tropical characteristics over New England on September 6th. Hurricane warnings were posted at various times for most of the Lesser Antilles, Puerto Rico, Hispaniola, the Bahamas, and from the middle Florida Keys northward to southern North Carolina. Gale warnings were extended in stages from the Carolinas north to Eastport, Maine.

Historically, there have been few storms whose effects were so widespread.

David's track basically resembles an outline of the Atlantic subtropical high pressure ridge. This track describes an arc extending across the tropical Atlantic and then roughly paralleling the Greater Antilles and the U. S. east coast. This similarity of storm track and pressure patterns is, of course, the observational basis for using pressure patterns to understand and forecast the motion of hurricanes.

During most of David's history, the subtropical ridge extended westward to the vicinity of the United States' east coast and David proceeded steadily across the Atlantic and into the eastern Caribbean. As it moved just south of the eastern tip of the Dominican Republic, an abrupt turn to the north northwest was noted on August 31st, followed by another turn to the west. Then a mostly northwesterly course was resumed. This oscillation in course resulted in a landfall near Santa Domingo, after which the storm assumed a heading toward the United States.

During the 31st, a short wave trough in the westerlies moved off the United States coast to a position north of the storm along longitude 70° W. It is possible that such a trough could, with subtlety,

weaken the subtropical ridge and be a factor in the change in course, referred to above. It is also possible that the mountainous terrain of Hispaniola with peaks to 10,000 feet was a factor in David's motion, although the theoretical details of such an interaction are poorly understood.

A study of the storm track shows that there are several oscillations in the track. It could also be surmised that the zig-zag across Hispaniola is just the largest of these oscillations.

Late on September 2d, as David was over Andros Island and approaching southern Florida, the track heading was 310°. David was heading directly for Miami. Less than 12 hours later, the heading had changed to 330°, a change of 20°. Because of the orientation of the southeast Florida coast relative to the track, this small change in course resulted in a landfall north of Palm Beach rather than at Miami. This 20° change appears to be part of one of the oscillations discussed above.

David was first identified as a tropical weather system on August 22d, while moving westward from Africa into the tropical Atlantic. Satellite surveillance indicated substantial concentrated convection and organization as this system passed to the south of Cape Verdes. On the 25th, it was assigned tropical depression status, and was named Tropical Storm David on the 26th while located midway between Cape Verdes and the Lesser Antilles.

With this auspicious start, conditions remained favorable for David's strengthening. Hurricane intensity was reached by the 27th. The naming of David and the upgrading to hurricane status was based solely on satellite data. Reconnaissance aircraft began monitoring the storm on the 27th. Deepening occurred at the rate of 1.5 mb/hr for 36 hours, beginning when David became a hurricane. On the 29th David moved directly across Dominica with maximum winds estimated at 125 knots. This estimate is based on aerial reconnaissance data and should qualify David as the most intense storm to affect Dominica during this century.

Dominica took the brunt of the storm. Winds were estimated in excess of 100 knots, and rainfall up to 10 inches caused extensive flooding. The capital, Roseau, was devastated, resembling an air raid. The city was without food, water, or shelter for several days. Damage was heaviest over the southwest portion of the island. Roads to and from the capital were made impassable by landslides, washouts, and fallen trees. Some shipping was possible to the port of Roseau, but the pier was partially damaged. Death estimates have reached into the 50's with 180 reported injured. Some 60,000 people were made homeless--nearly three-

# HURRICANE DAVID

fourths of the island's population. Crop damage was extensive. About three-fourths of the banana and coconut crops was destroyed.

On Martinique winds at Fort St. Louis were measured at 89 knots. Fifteen-foot waves battered the port of Fort de France. There were no deaths, 20 to 30 injuries, and 500 people left homeless. Crop damage, mainly bananas, was estimated at \$50 million. On Guadeloupe the southern region of Basse Terre was hit severely. The dock at the main banana port was destroyed. Crop damage was estimated at \$100 million; the banana crop in Basse Terre was completely destroyed. No deaths, few injuries, and several hundred homeless were reported on the island. Marie Calante and Les Saintes, a small island group, were both devastated by the storm.

More strengthening occurred as the storm moved into the Caribbean. Moving west northwestward, the eye passed about 70 n.mi. south of Puerto Rico, where torrential rainfall was the primary effect. Severe flooding occurred over many sections of Puerto Rico on the 31st. Rainfall totals from David reached to near 20 inches in the central mountains, 19 inches in the southwest and lesser amounts elsewhere.

St. Croix reported some flooding with rainfall amounts of 10-12 inches.

Puerto Rico was declared a disaster area. The death count was seven. Three deaths in Toa Baja and one in Guaynebo were accidents involving electrocution from loose electric wires. A person in San Sebastian was killed by a falling tree. Agricultural losses were reported as severe.

Winds continued to increase before landfall in the Dominican Republic. Aerial reconnaissance reported 150 knot winds and a central pressure of 924 millibars. This is the maximum intensity of the hurricane and occurred at 1800 GMT on August 30, while located south of Puerto Rico.

Maintaining winds close to 150 knots, David made landfall on the afternoon of the 31st just west of Santo Domingo on the south coast of the Dominican Republic. The year 1930 was the last time that a storm of such intensity directly affected the Dominican Republic.

Floods were the great killer. They isolated communities, swept villages away, and were mainly responsible for more than 1,000 deaths that have been estimated so far. The port of Santo Domingo was closed for several days to permit soundings in the channels. At the Sea-Land terminal in Rio Haina a rail-mounted container crane collapsed. Most roads were heavily damaged as were the cities of Jarabacoa, San Cristobal, and Bani.

In the mountain village of Padre las Casas several hundred people were killed when a church and school they were using as a haven was swept away by a rampaging river. Crop damage was severe and widespread. Almost 70% of the crops were destroyed, 150,000 were left homeless. President Guzman was reported to have estimated the agricultural, industrial and other pro-

perty losses at \$1 billion.

Crossing Hispaniola on September 1st while moving in a northwesterly direction, David emerged over the Windward Passage in a much weakened state. Maximum winds were reduced to 60 knots as a result of passage over the mountainous terrain.

The path continued across the eastern tip of Cuba and then northwestward toward Florida. Intensification began anew as warm Bahamian waters were encountered, but David did not regain its previous strength. It crossed Andros Island in the western Bahamas on the 2d. During that afternoon Andros Island reported 60-70 knot winds shortly before the eye arrived. Up to 8 inches of rainfall was reported in the Bahamas.

Early on the 3d (Labor Day) David was less than 150 n.mi. away from the southeast Florida coast, when aerial reconnaissance reports indicated that the central pressure had dropped to 965 millibars. The report is questionable because within a few hours, the pressure was back up to 980 millibars.

David moved inland just north of Palm Beach at approximately 1600 GMT on the 3d. At this time the eye diameter was 20 to 30 n.mi. The eye passed over a number of coastal cities in a zone from Jupiter in Martin County northward to New Smyrna Beach (just south of Daytona Beach), where it moved offshore. Since the storm was moving almost due north at about 10 knots, some locations were within David's eye for periods of about two hours.

Minimum pressure along the central Florida east coast was in the lower 970 millibar range. Highest surface winds experienced in Florida were gusts to 75 knots at South Melbourne Beach and a 74 knot gust at Jupiter. Heavy surf and rainfall amounts in the 5-10 inch range accompanied the storm. Vero Beach measured 8.92 inches and up to 12 inches were estimated in the vicinity of the city.

Changing very little in intensity, David made its final landfall just south of Savannah Beach, GA, during the afternoon of the 4th. Savannah reported 50 knot sustained winds and 970 millibars pressure. Pressure-wind relationships suggest that 75-80 knot winds may have occurred on the beach in the landfall area. Tides were generally 3 to 5 feet above normal. Two people were drowned in the heavy surf off Jekyll Island. To the north gusts along the coast ranged from 50 to 60 knots. Charleston reported 49 knot gusts. Several tornadoes occurred between Charleston and Myrtle Beach. Rainfall was heavy in some areas with Savannah receiving 6.86 inches. There were reports of up to 10 inches in interior South Carolina. Flooding was light to moderate. However, in North Carolina major flooding was reported on the Lumber River.

The storm accelerated to the north, then to the northeast as it moved across the middle Atlantic states into New England. Sustained winds gradually decreased to near 40 knots. Raleigh and Greensboro reported gusts to 31 knots. To the east Elizabeth City was drenched by 8.52 inches of rain. Tornadoes touched

## HURRICANE DAVID

down in Maryland, Virginia, Pennsylvania, Delaware, and New Jersey. Wilmington, DE, recorded a 46 knot gust, while winds at Richmond gusted to 39 knots. Wind and rain were responsible for widespread power outages all along the eastern seaboard. In the New York metropolitan area, 2.5 million people were without electricity.

David lost its tropical characteristics on the 6th, by the time it reached New England. As an extratropical storm it moved across New Brunswick and New-

foundland on the 7th and into the far North Atlantic by the 8th.

Fatality estimates in the United States range from 10 to 20. Although United States damage was generally light in most areas, the total loss is substantial, due to the large total area affected. Rainfall flooding, several tornadoes, minor to occasionally moderate beach erosion, and agricultural losses all figure in the damage totals.



# HURRICANE DAVID

## Preliminary Report

DATE	TIME (GMT)	LAT.	LONG.	PRESSURE (MB)	WIND (KT)	STAGE
8/25	1200	11.7	36.1	1008	25	Tropical Depression
	1800	11.7	38.2	1007	25	
8/26	0000	11.7	40.3	1006	30	Tropical Storm
	0600	11.6	42.2	1005	35	
	1200	11.6	44.0	1003	40	
	1800	11.6	45.5	998	45	
8/27	0000	11.7	47.0	990	55	Hurricane
	0600	11.8	48.5	980	65	
	1200	11.8	50.0	966	80	
	1800	11.9	51.5	954	95	
8/28	0000	12.2	52.9	947	115	
	0600	12.5	54.4	941	125	
	1200	12.8	55.7	938	130	
	1800	13.2	56.9	941	125	
8/29	0000	13.7	58.0	944	120	
	0600	14.2	59.2	942	120	
	1200	14.8	60.3	938	125	
	1800	15.3	61.6	933	125	
8/30	0000	15.6	62.8	929	130	
	0600	16.0	64.2	925	140	
	1200	16.3	65.2	924	145	
	1800	16.6	66.2	924	150	
8/31	0000	16.8	67.3	927	145	
	0600	17.0	68.3	928	145	
	1200	17.2	69.1	927	145	
	1800	17.9	69.7	926	150	
9/01	0000	18.8	70.4	953	130	
	0600	19.3	72.0	978	100	
	1200	19.7	73.7	1002	65	
	1800	20.6	74.6	1002	60	
9/02	0000	21.3	75.2	997	65	Tropical Storm Hurricane
	0600	21.9	75.5	990	70	
	1200	23.0	76.3	984	70	
	1800	23.9	77.4	979	75	
9/03	0000	24.6	78.3	976	80	
	0600	25.3	79.1	974	80	
	1200	26.3	79.6	973	85	
	1800	27.2	80.2	972	85	
9/04	0000	28.0	80.5	971	85	
	0600	29.1	80.8	970	85	
	1200	30.2	80.9	970	85	
	1800	31.5	81.2	970	80	
9/05	0000	32.5	81.1	972	65	Tropical Storm
	0600	33.5	80.9	976	55	
	1200	34.9	80.6	980	45	
	1800	36.2	80.1	984	40	

# HURRICANE DAVID

DATE	(GMT)	LAT.	LONG.	PRESSURE (MB)	WIND (KT)	STAGE
9/06	0000	37.6	79.5	987	40	Extratropical
	0600	39.2	78.5	989	40	
	1200	41.5	76.3	991	40	
	1800	43.3	73.7	992	40	
9/07	0000	45.0	70.0	991	45	
	0600	46.5	66.0	988	50	
	1200	47.5	61.5	987	50	
	1800	50.0	57.0	986	55	
9/08	0000	52.5	52.5	985	60	

# HURRICANE FREDERIC

29 August - 14 September 1979

National Hurricane Center, NOAA  
Miami, Florida

The tropical wave from which Frederic developed left the west African coast late on August 27th with little to distinguish it from most other waves. By midday on the 28th, however, satellite pictures showed a rather large, circular area of convection south of the Cape Verde Islands. Peripheral ship and satellite data indicated that a tropical depression had formed by 0600 GMT on the 29th. The depression gradually strengthened while moving westward at 18 kts for the next 24 hours and reached tropical storm strength near 11.5N 36.0W about 1200 GMT on the 30th. Frederic continued at a remarkably steady 18 kt forward movement for the next 48 hours while gradually turning to the west northwest. Conditions appeared ideal for Frederic to become a very intense hurricane, as David had in the same area. An eye became visible on infrared satellite pictures about 0600 GMT on September 1 and Frederic was upgraded to a hurricane near 13N 49W.

About this time the outflow from David, which had become a very intense hurricane lashing Hispaniola, began to descend from the northwest right over Frederic, and the newborn hurricane weakened to a tropical storm again by 0000 GMT on the 2d. Frederic gradually turned more to the west and decelerated with the weakening trend continuing until winds finally dropped below storm strength just north of Haiti about 1800 GMT on the 6th.

Frederic had passed over Puerto Rico and the Dominican Republic which helped disrupt the low level wind circulation in addition to the continued unfavorable impact of the outflow from David. The storm actually moved towards the southwest at less than 10 kts while southeast of the Dominican Republic, and then suddenly changed course towards the northwest during the afternoon of the 5th in a manner similar to David, passing just west of Santo Domingo about 0000 GMT on the 6th.

As David weakened over the northeastern United States, Frederic continued slowly westward over or just south of the Cuban coast for the next four days. Escaping the unfavorable influence of David, Frederic proceeded to strengthen beginning about midday on the 7th, and regained tropical storm strength about 100 miles east of the Isle of Pines, Cuba, about 0000 GMT on the 9th. Frederic turned to the northwest during the next 48 hours, moving at an average forward speed of 4 kts, and regained hurricane intensity over the western end of Cuba about 1200 GMT on the 10th. Factors which probably contributed to the strengthening while the center was so close to land were the very warm sea surface temperatures of 29-30°C, the large cyclonic envelope of the storm, and the establishment of a large anticyclone at 200 mb over the storm.

Except for the trochoidal motion frequently observed

with tropical cyclones, Frederic moved steadily northwest and turned to the north northwest with increasing forward speed for the next 60 hours, the eye passing across Dauphin Island, AL about 0300 GMT on the 13th and crossing the coastline near the Mississippi-Alabama border about one hour later.

Frederic turned north and northeast and increased its forward speed to 20 kts during the next 24 hours, losing hurricane intensity near Meridian, MS, about 1200 GMT on the 13th and becoming part of a frontal low pressure area near the southwest corner of Pennsylvania about 1200 GMT on the 14th. The extra-tropical remnants of Frederic moved very rapidly northeastward through Pennsylvania, New York, and western New England during the day and exited from northern Maine that evening.

## METEOROLOGICAL STATISTICS, DEATHS, AND DAMAGES.

a.) Leeward Islands, Virgin Islands, and Puerto Rico. Frederic weakened approaching the Leeward Islands and post-analysis indicates sustained winds had dropped below hurricane force well before the center reached the Leeward Islands. Maximum sustained winds were 25-35 kts with gusts of 45-60 kts. Rainfall amounts were 10 inches in 12 hours in eastern Puerto Rico, 12 inches in 24 hours in St. Thomas, and 24 inches in 30 hours at St. Croix. A few tornadoes were reported in the Virgin Islands and Puerto Rico. Seven deaths have been reported at St. Maarten.

b.) Dominican Republic, Haiti, and Cuba.

Frederic continued to weaken to a tropical depression while over eastern Cuba, but regained hurricane status before leaving western Cuba. Heavy rains occurred over the Dominican Republic for several days after the center passed, augmenting the damage caused by David. Rains diminished as Frederic moved over eastern Cuba, but heavy rains and gale force winds were reported over western Cuba as the depression regained hurricane strength. No reports of deaths have been received from these areas, but damage estimates from western Cuba are high.

c.) As Frederic strengthened over the southeastern Gulf of Mexico, winds of 45-50 kts were reported at Dry Tortugas during the evening of the 10th and morning of the 11th.

The highest winds reported in squalls and gusts are as follows: Dauphin Island bridge, 126 kts; Dauphin Island Sea Lab, 119 kts before equipment destroyed; Pascagoula Ingalls Ship Yard, 110 kts; Pascagoula Civil Defense, 100 kts before equipment broke;



# HURRICANE FREDERIC

Biloxi Civil Defense, Keesler AFB, and Gulfport Air National Guard, all 85 kts; Mobile Airport and Civil Defense, both 84 kts; Pensacola Naval Air Station, 83 kts; Hattiesburg, MS, 78 kts; Meridian, MS, Airport 70 kts; Pensacola Municipal Airport 68 kts; Hancock County, Mississippi, 64 kts.

Gale force winds in gusts occurred near the track of Frederic throughout eastern Mississippi, western Alabama, and many sections of Tennessee, Kentucky, southern Ohio, western portions of Pennsylvania and New York, and through western New England. Along the coasts, gale force winds or higher occurred from the New Orleans east area southward to the Mississippi River delta and eastward to the Panama City area, as well as along portions of the New England coast.

Tides of 8 to 12 feet above normal were reported in the hurricane warning area from Pascagoula, Mississippi to western Santa Rosa Island. Tides were 12 feet at Gulf Shores, AL, 11 feet at Fort Morgan, AL, 9.5 feet at Gulf State Park, 12 feet just south of Mobile Tunnel and 8 feet just north of Mobile Tunnel, 10 feet on the east end of Dauphin Island and 7.5 feet on the west end, 9 feet at Bayou La Batre, 9 feet at Fairhope, 9 feet on western Santa Rosa Island, FL.

Rainfall amounts of 8 to 12 inches fell from Pascagoula to Mobile with 4 to 6 inches through other parts of eastern Mississippi and western Alabama, and northwestern Florida and northward through Tennessee. Amounts of 2 to 4 inches were reported along the track all the way to New England. No rainfall induced flooding of any consequence was associated with Frederic in the United States.

Over a dozen tornadoes were reported, mostly along the Gulf coastal sections, but they resulted in no

deaths or injuries and only minor property damage.

Thus far, 11 storm related deaths have been attributed to Frederic in the United States, but only 2 were caused directly. Although a final count of storm related deaths is unavailable, it is believed to be less than 15.

Preliminary estimates of damages exceeding \$2 billion make it likely that Frederic will rank as one of the costliest if not the costliest hurricane ever to hit the United States. Insurance industry estimates of insured losses stand at \$750 million as of this report.

Between 300,000 and 400,000 persons were evacuated.

The maximum sustained winds in Frederic during its lifetime were estimated at 115 kts, based on aircraft reconnaissance and pressure-wind relationships. The NOAA research aircraft reported a flight level wind of 138 kts a short time prior to landfall, very close to that observed at Dauphin Island. The lowest central pressure of 943 millibars was reported by Air Force reconnaissance aircraft about 1200 GMT on the 12th, when the center was about 200 miles southeast of Mobile. However, the central pressure reported by reconnaissance aircraft during the last 6 hours was 946 millibars. Unofficial pressure reports along the coast in the eye were Dauphin Island Sea Lab 943 mb, Grand Bay, AL 931 mb (appears unrealistic), Pascagoula Civil Defense 946 mb. Meridian, MI had a minimum sea level pressure of 977 mb (28.85 inches), the lowest in their records. Calm winds were observed at Pascagoula for about one hour, and over the western end of Dauphin Island. Calm winds were not observed in Mobile.

# HURRICANE FREDERIC

## Preliminary Report

<u>DATE</u>	<u>TIME (GMT)</u>	<u>LAT.</u>	<u>LONG.</u>	<u>PRESSURE (MB)</u>	<u>WIND (KT)</u>	<u>STAGE</u>
8/29	06	11.0	25.5		25	TROPICAL DEPRESSSION
	12	11.1	28.0		30	
	18	11.2	30.5		30	
8/30	00	11.3	32.5		30	TROPICAL STORM
	06	11.4	34.2		30	
	12	11.5	36.0		35	
	18	11.6	37.8		40	
8/31	00	11.7	39.7		45	
	06	11.8	41.6		50	
	12	11.9	43.5		55	
	18	12.0	45.1		55	
9/01	00	12.5	47.0		60	HURRICANE
	06	12.9	48.7		65	
	12	13.3	50.4		65	
	18	13.8	52.3		65	
9/02	00	14.3	54.1		60	TROPICAL STORM
	06	14.9	55.5		60	
	12	15.5	57.2	996	60	
	18	16.3	58.8	999	55	
9/03	00	16.7	59.8	1002	55	
	06	17.1	60.8		55	
	12	17.5	61.8	999	50	
	18	17.8	62.8		50	
9/04	00	18.0	63.8		50	
	06	18.1	64.8		45	
	12	18.1	65.8	1004	45	
	18	18.1	66.8		45	
9/05	00	18.0	67.8		45	
	06	17.5	68.7		45	
	12	17.4	69.2	1008	40	
	18	17.8	69.6		40	
9/06	00	18.5	69.9	1005	40	
	06	19.4	70.7		35	
	12	19.9	71.8	1006	35	
	18	20.0	73.0		30	
9/07	00	20.1	74.5		30	TROPICAL DEPRESSION
	06	20.3	75.8		25	
	12	20.6	77.0	1005	25	
	18	20.9	78.0	1004	25	
9/08	00	21.1	78.7	1003	30	
	06	21.3	79.3	1003	30	
	12	21.5	79.8	1002	30	
	18	21.6	80.5	1002	30	

# HURRICANE FREDERIC

<u>DATE</u>	<u>TIME</u> <u>(GMT)</u>	<u>LAT.</u>	<u>LONG.</u>	<u>PRESSURE</u> <u>(MB)</u>	<u>WIND</u> <u>(KT)</u>	<u>STAGE</u>
9/09	00	21.7	81.0	1001	35	TROPICAL STORM
	06	21.8	81.5	1000	40	
	12	21.9	82.0	999	45	
	18	22.0	82.5	997	50	
9/10	00	22.4	83.0	995	55	HURRICANE
	06	22.7	83.3	992	60	
	12	22.8	83.6	990	65	
	18	23.0	83.8	987	70	
9/11	00	23.3	84.0	985	75	
	06	23.8	84.4	983	75	
	12	24.4	84.8	980	85	
	18	25.0	85.2	968	95	
9/12	00	25.7	85.8	960	105	
	06	26.5	86.4	952	110	
	12	27.4	87.0	943	115	
	18	28.4	87.7	950	115	
9/13	00	29.7	88.0	946	115	
	06	30.8	88.5	955	95	
	12	32.2	88.7	975	65	
	18	34.0	88.0	985	45	
9/14	00	35.2	87.0	990	40	TROPICAL STORM
	06	37.0	84.5	996	35	
	12	39.5	81.0	997	35	
	18	42.5	76.0	998	30	
9/15	00	48.0	68.0			EXTRA TROPICAL

## LANDFALLS (APPROXIMATE)

1	9/03	18	17.8	62.8	ST. BARTHELMY
2	9/04	12	18.1	65.8	HUMACAO, PUERTO RICO
3	9/06	00	18.5	69.9	SANTO DOMINGO, DOMINICAN REPUBLIC
4	9/07	00	20.1	74.5	EASTERN TIP OF CUBA
5	9/13	03	30.3	88.2	DAUPHIN ISLAND, ALABAMA



# TROPICAL STORM ELENA

29 August - 1 September 1979

National Hurricane Center, NOAA  
Miami, Florida

The tropical wave from which Elena developed was relatively weak when it passed over Florida on 27 August. After that the wave amplified slowly and by the morning of the 29th, ship and data buoy reports and satellite photographs suggested that a low level circulation was forming. An Air Force reconnaissance flight confirmed the existence of a tropical depression in the central Gulf of Mexico at 2308 GMT on the 29th. Slow development ensued as the depression moved generally west northwestward about 10 kt, and by early afternoon on the 30th minimal tropical storm strength was attained.

Elena continued toward the west northwest without intensification but turned gradually toward the north as the center reached the Texas coast near Matagorda on the morning of 1 September. Barely of tropical storm strength when it made landfall, Elena could no longer be identified even as a tropical depression by the morning of the 2d.

The steering of Elena was controlled by a high pressure area located over the Southern United States. Pressure falls ahead of an approaching frontal trough began to erode the high by 31 August, allowing the storm to turn toward the north as it neared the Texas coast.

The flow at 200 mb was anticyclonically curved

throughout Elena's existence, but generally from a northerly direction. When the depression formed on the 29th, the 200 mb anticyclone was centered over extreme southern Texas, and by 1 September when the storm made landfall it had moved westward to Baja California. Although tropical storms sometimes develop under this type of upper flow, it is not usually conducive to continued strengthening.

Gale warnings were issued from Port O'Connor, TX to Morgan City, LA, in the first tropical storm advisory, and remained in effect until the center moved inland on the afternoon of 1 September. The highest wind reported on shore was a gust to 40 kt at Galveston on the evening of the 1st.

Some heavy rains fell along the Texas coast on the 1st, including 4.6 inches in downtown Houston, 3 inches in Beaumont, and over an inch at Victoria.

Highest tides reported were just over three feet MSL at Galveston, Texas City, and Baytown.

There have been no reports of damages or casualties associated with Elena.

# TROPICAL STORM ELENA

## Preliminary Report

<u>DATE</u>	<u>TIME</u> <u>(GMT)</u>	<u>LAT.</u>	<u>LONG.</u>	<u>PRESSURE</u> <u>(MB)</u>	<u>WIND</u> <u>(KT)</u>	<u>STAGE</u>
8/30	0000	25.5	89.1	1008	25	DEPRESSION
	0600	26.0	89.9			
	1200	26.4	90.7			
	1800	26.8	91.8	1006	35	TROPICAL STORM
8/31	0000	26.5	93.0	1004		
	0600	26.8	93.8			
	1200	27.0	94.2	1008		
	1800	27.3	94.7			
9/01	0000	27.6	95.1			
	0600	27.9	95.5			
	1200	28.5	95.8			
	1800	29.0	95.8		25	DEPRESSION
9/02	0000	29.6	95.8			

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

STATE	Temperature					Precipitation				
	Monthly extremes					Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In	Station	Least In
Alabama	2 Stations	108	9	Athens 2	49	23	Montgomery	10.84	Clanton	.95
Alaska	2 Stations	86	25+		19	29	Cannery Creek	16.94		.01
Arizona	Willow Beach	119	2	Chino Valley	27	22	Oracle 2 SE	7.87	Willow Beach	.08
Arkansas	2 Stations	100	4	Calico Rock	49	26	Buffalo Tower	8.75		.59
California	2 Stations	120	4+	San Diego	18	21	Mitchell Caverns	8.39	157 Stations	.00
Colorado	Grand Valley	107	5	Idaho	27	29+	Leadville	6.23	Leadville	.13
Connecticut	Wigwam Reservoir	95	6	Falls Village	3	17	West Hartford	11.02	Stevenson Dam	3.42
Delaware	2 Stations	100	10	Middletown 1 WSW	61	17	Bridgeville 1 NW	11.39	Middletown 1 WSW	4.34
Florida	2 Stations	100	1	Clayton 1 SSW	49	17	Saint Leo	16.99	St. Augustine WFOY	1.10
Georgia	2 Stations	102	4+				Nahunta	13.14	Lumber City	
Hawaii	Aloha Stadium-Halawa	81	29	Mauna Kea Obs III.2	27	13	N Waialua Ditch 1051	12.62	7 Stations	.00
Idaho	Boise Lucky Peak Dam	100	11	Stanley	27	17	Boise 2 W	2.75	2 Stations	.27
Illinois	2 Stations	100	8	2 Stations	39	18	Peru 2 W	12.41	Havana 4 NNE	.66
Indiana	North Vernon 2 SW	91	8	2 Stations	49	16	Goshen College	11.68	Newburgh Lock & Dam	1.77
Iowa	Knoxville	99	1	2 Stations	49	15		16.17		.95
Kansas	Webster Dam	104	10+	2 Stations	44	17	Gridley	8.32		.25
Kentucky	2 Stations	99	6	2 Stations	44	17	Barren River Lake	10.48		2.37
Louisiana	Rosepine Exp Station	99	6	2 Stations	49	29+	Marksville	10.49	Marksville	2.95
Maine	2 Stations	98	8	Rangleley	36	17	Vanceboro 2	11.07	Hancock Fruit Lab	2.31
Maryland	Baltimore WSO CI	98	8	2 Stations	36	17	Solomons	11.07		3.42
Massachusetts	Chester 2	97	1	5 Stations	39	18	Hudson	8.09	Port Huron	.76
Michigan	2 Stations	94	8	Tower 3 S	49	18	Leech Lake Dam	13.90	Leech Lake Dam	.63
Minnesota	3 Stations	98	30+	2 Stations	41	12	Lambert 5 E	9.85		1.09
Mississippi	2 Stations	102	1	2 Stations	41	12		6.95		
Missouri	Biddle 8 SW	105	19	Wisdom	28	17	Livingston FAA AP	8.63	Brockway 3 WSW	.54
Montana	2 Stations	100	8+	Ellsworth 15 NNE	41	26	Northeast Nebraska Exp Station	5.32		.00
Nebraska	Sunrise Manr Las Vegas	92	5+	2 Stations	49	17	Elgin 3 SE	9.73	Lebanon FAA AP	2.58
Nevada	3 Stations	96	10	Mount Washington	49	17	Mount Washington	9.73	High Point Park	2.83
New Hampshire	Newark WSO AP	103	8	Essex Fells Serv Bldg	30	21	Kelly Ranch	6.13	Shiprock	.10
New Jersey	2 Stations	98	17	3 Stations	37	16	Avon	11.61	Avon	1.81
New Mexico	Smithfield	101	16	Transou	27	14	Lake Toxaway 2 SW	5.37		.02
North Carolina	Breien	98	16	Kenmare 1 WSW	37	16	Put in Bay Perry Mon	11.04		.16
North Dakota	2 Stations	96	19	2 Stations	46	11	Helena	7.68	Helena 1 SSE	.49
Ohio	Mangum Research Station	104	19	Boise City 2 E	46	11	Eugene WSO AP	3.46	Port Orford 2	1.75
Oregon	Lost Creek Dam	102	1	Sisters	34	17	Blosserville 1 N	9.73	Ponce City	4.80
Pennsylvania	2 Stations	95	12+	2 Stations	46	18	Providence WSO AP	10.09		.41
Puerto Rico	2 Stations	98	29+	2 Stations	46	18				.49
Rhode Island	2 Stations	89	5+	2 Stations	46	18				.80
South Carolina	2 Stations	104	21	2 Stations	49	17				.00
South Dakota	2 Stations	107	1	2 Stations	36	14				.08
Tennessee	Pulaski Water Plant	99	9	2 Stations	43	16				2.62
Texas	2 Stations	108	22	Vega	46	11				1.18
Utah	2 Stations	111	5	Hardware Ranch	30	21				.07
Vermont	2 Stations	91	1	2 Stations	34	17				1.78
Virginia	2 Stations	100	1	2 Stations	33	16				1.61
Virgin Islands	Truman Field FAA AP	99	8	2 Stations	33	16				.9
Washington	Walla Walla FAA AP	97	10	2 Stations	33	16				
West Virginia	2 Stations	97	10	2 Stations	33	16				
Wisconsin	3 Stations	94	1	2 Stations	29	15				
Wyoming	2 Stations	101	1	2 Stations	26	8				



## METRIC UNITS

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AUGUST 1979

[illegible]



# CLIMATOLOGICAL DATA

METRIC UNITS

AUGUST 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	mm			Departure from normal	Greatest in 24 hours	25 mm. or more	No. of days	Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
												°C	°F					°C	°F																°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C



## METRIC UNITS

AUGUST 1979

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## METRIC UNITS

AUGUST 1979

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## AUGUST 1979

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## METRIC UNITS

AUGUST 1979

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## HEATING DEGREE DAYS

(Base 65°F.)

State and Station	Current season			Normals	July through this month	State and Station	Current season			Normals	July through this month	State and Station	Current season			Normals	July through this month	State and Station	Current season			Normals	July through this month
	This month	Period July through this month	Period July through this month				This month	Period July through this month	Period July through this month				This month	Period July through this month	Period July through this month				This month	Period July through this month	Period July through this month		
ALABAMA						ALABAMA						ALABAMA						ALABAMA					
BIRMINGHAM U	0	0	0	0	0	BIRMINGHAM U	0	0	0	0	0	BIRMINGHAM U	0	0	0	0	0	BIRMINGHAM U	0	0	0	0	0
BIRMINGHAM	0	0	0	0	0	BIRMINGHAM	0	0	0	0	0	BIRMINGHAM	0	0	0	0	0	BIRMINGHAM	0	0	0	0	0
HUNTSVILLE	0	0	0	0	0	HUNTSVILLE	0	0	0	0	0	HUNTSVILLE	0	0	0	0	0	HUNTSVILLE	0	0	0	0	0
MOBILE	0	0	0	0	0	MOBILE	0	0	0	0	0	MOBILE	0	0	0	0	0	MOBILE	0	0	0	0	0
MONTGOMERY	0	0	0	0	0	MONTGOMERY	0	0	0	0	0	MONTGOMERY	0	0	0	0	0	MONTGOMERY	0	0	0	0	0
ALASKA						ALASKA						ALASKA						ALASKA					
ANCHORAGE	194	321	502			ANCHORAGE	194	321	502			ANCHORAGE	194	321	502			ANCHORAGE	194	321	502		
ANNETTE	117	313	442			ANNETTE	117	313	442			ANNETTE	117	313	442			ANNETTE	117	313	442		
BADEN	579	1255	1664			BADEN	579	1255	1664			BADEN	579	1255	1664			BADEN	579	1255	1664		
BARTER ISLAND	675	1363	1584			BARTER ISLAND	675	1363	1584			BARTER ISLAND	675	1363	1584			BARTER ISLAND	675	1363	1584		
BETHEL	361	706	713			BETHEL	361	706	713			BETHEL	361	706	713			BETHEL	361	706	713		
BETHEL	218	412	637			BETHEL	218	412	637			BETHEL	218	412	637			BETHEL	218	412	637		
BIG DELTA	146	284	503			BIG DELTA	146	284	503			BIG DELTA	146	284	503			BIG DELTA	146	284	503		
COLD BAY	400	767	867			COLD BAY	400	767	867			COLD BAY	400	767	867			COLD BAY	400	767	867		
FAIRBANKS	143	267	452			FAIRBANKS	143	267	452			FAIRBANKS	143	267	452			FAIRBANKS	143	267	452		
GULKANA	218	433	620			GULKANA	218	433	620			GULKANA	218	433	620			GULKANA	218	433	620		
HUMER	316	618	785			HUMER	316	618	785			HUMER	316	618	785			HUMER	316	618	785		
JUNEAU	205	446	620			JUNEAU	205	446	620			JUNEAU	205	446	620			JUNEAU	205	446	620		
KING SALMON	274	488	673			KING SALMON	274	488	673			KING SALMON	274	488	673			KING SALMON	274	488	673		
KODIAK	236	426	651			KODIAK	236	426	651			KODIAK	236	426	651			KODIAK	236	426	651		
KOTZEBUE	282	614	818			KOTZEBUE	282	614	818			KOTZEBUE	282	614	818			KOTZEBUE	282	614	818		
MC GRATH	242	463	576			MC GRATH	242	463	576			MC GRATH	242	463	576			MC GRATH	242	463	576		
NOME	360	795	952			NOME	360	795	952			NOME	360	795	952			NOME	360	795	952		
ST. PAUL ISLAND	444	941	1141			ST. PAUL ISLAND	444	941	1141			ST. PAUL ISLAND	444	941	1141			ST. PAUL ISLAND	444	941	1141		
TALKEETNA	216	368	542			TALKEETNA	216	368	542			TALKEETNA	216	368	542			TALKEETNA	216	368	542		
UNALASKET						UNALASKET						UNALASKET						UNALASKET					
VALDEZ	326	613	766			VALDEZ	326	613	766			VALDEZ	326	613	766			VALDEZ	326	613	766		
YAKUTAT	308	552	735			YAKUTAT	308	552	735			YAKUTAT	308	552	735			YAKUTAT	308	552	735		
ARIZONA						ARIZONA						ARIZONA						ARIZONA					
FLACKSTAFF	157	225	145			FLACKSTAFF	157	225	145			FLACKSTAFF	157	225	145			FLACKSTAFF	157	225	145		
PHOENIX	0	0	0			PHOENIX	0	0	0			PHOENIX	0	0	0			PHOENIX	0	0	0		
TUCSON	0	0	0			TUCSON	0	0	0			TUCSON	0	0	0			TUCSON	0	0	0		
WINSTON	0	0	0			WINSTON	0	0	0			WINSTON	0	0	0			WINSTON	0	0	0		
YUMA	0	0	0			YUMA	0	0	0			YUMA	0	0	0			YUMA	0	0	0		
ARKANSAS						ARKANSAS						ARKANSAS						ARKANSAS					
FORT SMITH	0	0	0			FORT SMITH	0	0	0			FORT SMITH	0	0	0			FORT SMITH	0	0	0		
LITTLE ROCK	0	0	0			LITTLE ROCK	0	0	0			LITTLE ROCK	0	0	0			LITTLE ROCK	0	0	0		
NO. LITTLE ROCK	0	0	0			NO. LITTLE ROCK	0	0	0			NO. LITTLE ROCK	0	0	0			NO. LITTLE ROCK	0	0	0		
CALIFORNIA						CALIFORNIA						CALIFORNIA						CALIFORNIA					
BAKERSFIELD	0	0	0			BAKERSFIELD	0	0	0			BAKERSFIELD	0	0	0			BAKERSFIELD	0	0	0		
BISHOP	0	0	0			BISHOP	0	0	0			BISHOP	0	0	0			BISHOP	0	0	0		
BLUE CANYON	174	224	85			BLUE CANYON	174	224	85			BLUE CANYON	174	224	85			BLUE CANYON	174	224	85		
EUREKA U	165	373	518			EUREKA U	165	373	518			EUREKA U	165	373	518			EUREKA U	165	373	518		
FRESNO	0	0	0			FRESNO	0	0	0			FRESNO	0	0	0			FRESNO	0	0	0		
LONG BEACH	0	0	0			LONG BEACH	0	0	0			LONG BEACH	0	0	0			LONG BEACH	0	0	0		
LOS ANGELES	0	0	0			LOS ANGELES	0	0	0			LOS ANGELES	0	0	0			LOS ANGELES	0	0	0		
LOS ANGELES U	0	0	0			LOS ANGELES U	0	0	0			LOS ANGELES U	0	0	0			LOS ANGELES U	0	0	0		
MT SHASTA R	99	143	101			MT SHASTA R	99	143	101			MT SHASTA R	99	143	101			MT SHASTA R	99	143	101		
OKLAHOMA	26	59	154			OKLAHOMA	26	59	154			OKLAHOMA	26	59	154			OKLAHOMA	26	59	154		
RED BLUFF	0	0	0			RED BLUFF	0	0	0			RED BLUFF	0	0	0			RED BLUFF	0	0	0		
SACRAMENTO	0	0	0			SACRAMENTO	0	0	0			SACRAMENTO	0	0	0			SACRAMENTO	0	0	0		
SAN DIEGO	0	0	0			SAN DIEGO	0	0	0			SAN DIEGO	0	0	0			SAN DIEGO	0	0	0		
SAN FRANCISCO	56	111	177			SAN FRANCISCO	56	111	177			SAN FRANCISCO	56	111	177			SAN FRANCISCO	56	111	177		
SAN FRANCISCO U	125	276	379			SAN FRANCISCO U	125	276	379			SAN FRANCISCO U	125	276	379			SAN FRANCISCO U	125	276	379		
SANTA MARIA	35	104	214			SANTA MARIA	35	104	214			SANTA MARIA	35	104	214			SANTA MARIA	35	104	214		
STOCKTON	0	0	0			STOCKTON	0	0	0			STOCKTON	0	0	0			STOCKTON	0	0	0		
COLORADO						COLORADO						COLORADO						COLORADO					
ALAMOSA	127	184	151			ALAMOSA	127	184	151			ALAMOSA	127	184	151			ALAMOSA	127	184	151		
COLORADO SPRINGS	41	47	22			COLORADO SPRINGS	41	47	22			COLORADO SPRINGS	41	47	22			COLORADO SPRINGS	41	47	22		
DENVER	20	20	0			DENVER	20	20	0			DENVER	20	20	0			DENVER	20	20	0		
GRAND JUNCTION	3	3	0			GRAND JUNCTION	3	3	0			GRAND JUNCTION	3	3	0			GRAND JUNCTION	3	3	0		
PUEBLO	8	8	0			PUEBLO	8	8	0			PUEBLO	8	8	0			PUEBLO	8	8	0		
CONNECTICUT						CONNECTICUT						CONNECTICUT						CONNECTICUT					
BRIDGEPORT	13	21	0			BRIDGEPORT	13	21	0			BRIDGEPORT	13	21	0			BRIDGEPORT	13	21	0		
HARTFORD	30	46	12			HARTFORD	30	46	12			HARTFORD	30	46	12			HARTFORD	30	46	12		
DELAWARE						DELAWARE						DELAWARE						DELAWARE					
WILMINGTON	7	11	0			WILMINGTON	7	11	0</														





# STORM SUMMARY

STATE	TORNADOES					HAILSTORMS			WINDSTORMS				LIGHTNING			HEAVY SNOWSTORMS AND BLIZZARDS				ICE STORMS				ALL OTHER						
	NUMBER	DAYS	DEATHS	INJURIES	* DAMAGE	DEATHS	INJURIES	* DAMAGE		DEATHS	INJURIES	* DAMAGE		DEATHS	INJURIES	* DAMAGE		DEATHS	INJURIES	* DAMAGE		DEATHS	INJURIES	* DAMAGE		DEATHS	INJURIES	* DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS					
Alabama																														
Alaska																														
Arizona	1	1																												
Arkansas	1	1																												
California																														
Colorado																														
Connecticut																														
Delaware																														
District of Columbia																														
Florida																														
Georgia																														
Hawaii	*																													
Idaho																														
Illinois	6	3			6																									
Indiana	4	2		1	3																									
Iowa	16	6	2	16	6																									
Kansas	6	2			3																									
Kentucky																														
Louisiana																														
Maine	*																													
Maryland & DC																														
Massachusetts	2	1	2	3	6																									
Michigan	9	4			5																									
Minnesota	1	1			5																									
Mississippi																														
Missouri																														
Montana	*																													
Nebraska	2	1		2																										
Nevada	2	2																												
New Hampshire																														
New Jersey																														
New Mexico	5	4			5																									
New York	1	1			3																									
North Carolina	2	1			1																									
North Dakota	8	3			2																									
Ohio	1	1			5																									
Oklahoma	13	5			3																									
Oregon																														
Pacific																														
Pennsylvania	1	1			4																									
Rhode Island																														
South Carolina																														
South Dakota	2	2			6																									
Tennessee																														
Texas	10	6			4																									
Utah																														
Vermont																														
Virginia																														
Virgin Islands	1	1			5																									
Washington	*																													
West Virginia	2	1			3																									
Wisconsin	15	3	1	1	6																									
Wyoming	5	3			2																									

## Average monthly values

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## Average monthly values

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## Average monthly values

Standard pressure surface mb.	GLASGOW, MT 724 MB										GRAND JUNCTION, CO 852 MB										GREAT FALLS, MT 889 MB										GREEN BAY, WI 990 MB									
	No. of observations		Dynamic height meters		Temperature °C	Dew Point °C	Resultant Wind		No. of observations	Dynamic height meters		Temperature °C	Dew Point °C	Resultant Wind		No. of observations	Dynamic height meters		Temperature °C	Dew Point °C	Resultant Wind		No. of observations	Dynamic height meters		Temperature °C	Dew Point °C	Resultant Wind												
	1	2	1	2	1	2	1	2		1	2	1	2	1	2		1	2	1	2	1	2		1	2	1	2	1	2	1	2	1	2							
1	1	577	15.3	14.1	21	1.1	1.1	1	696	14.1	9.1	10	2.4	31	1,472	17.9	5.7	14	3.5	31	1,118	14.7	5.6	25	2.1	31	563	16.5	12.5	25	3.0									
2	31	1,023	14.3	9.7	27	4.6	31	1,023	14.3	9.7	27	4.6	31	1,023	14.3	9.7	27	4.6	31	1,023	14.3	9.7	27	4.6	31	1,023	14.3	9.7	27	4.6										
3	31	1,504	12.1	5.4	27	6.1	31	1,504	12.1	5.4	27	6.1	31	1,504	12.1	5.4	27	6.1	31	1,504	12.1	5.4	27	6.1	31	1,504	12.1	5.4	27	6.1										
4	31	2,021	19.3	1.2	21	7.1	2.7	31	2,021	19.3	1.2	21	7.1	2.7	31	2,021	19.3	1.2	21	7.1	2.7	31	2,021	19.3	1.2	21	7.1	2.7	31	2,021	19.3	1.2	21	7.1						
5	31	2,545	10.3	-1.8	3.1	3.1	3.1	31	2,545	10.3	-1.8	3.1	3.1	31	2,545	10.3	-1.8	3.1	3.1	31	2,545	10.3	-1.8	3.1	3.1	31	2,545	10.3	-1.8	3.1	3.1									
6	31	3,127	5.2	-8.0	9.5	3.1	3.1	31	3,127	5.2	-8.0	9.5	3.1	3.1	31	3,127	5.2	-8.0	9.5	3.1	3.1	31	3,127	5.2	-8.0	9.5	3.1	3.1	31	3,127	5.2	-8.0	9.5	3.1						
7	31	3,728	1.9	-11.3	12.5	3.1	3.1	31	3,728	1.9	-11.3	12.5	3.1	3.1	31	3,728	1.9	-11.3	12.5	3.1	3.1	31	3,728	1.9	-11.3	12.5	3.1	3.1	31	3,728	1.9	-11.3	12.5	3.1						
8	31	4,367	-1.4	-17.1	12.1	3.1	3.1	31	4,367	-1.4	-17.1	12.1	3.1	3.1	31	4,367	-1.4	-17.1	12.1	3.1	3.1	31	4,367	-1.4	-17.1	12.1	3.1	3.1	31	4,367	-1.4	-17.1	12.1	3.1						
9	31	5,008	-5.4	-20.5	13.0	3.1	3.1	31	5,008	-5.4	-20.5	13.0	3.1	3.1	31	5,008	-5.4	-20.5	13.0	3.1	3.1	31	5,008	-5.4	-20.5	13.0	3.1	3.1	31	5,008	-5.4	-20.5	13.0	3.1						
10	31	5,785	-10.1	-24.8	14.9	3.1	3.1	31	5,785	-10.1	-24.8	14.9	3.1	3.1	31	5,785	-10.1	-24.8	14.9	3.1	3.1	31	5,785	-10.1	-24.8	14.9	3.1	3.1	31	5,785	-10.1	-24.8	14.9	3.1						
11	31	6,604	-15.2	-30.4	16.9	3.1	3.1	31	6,604	-15.2	-30.4	16.9	3.1	3.1	31	6,604	-15.2	-30.4	16.9	3.1	3.1	31	6,604	-15.2	-30.4	16.9	3.1	3.1	31	6,604	-15.2	-30.4	16.9	3.1						
12	31	7,468	-21.2	-33.2	17.7	3.1	3.1	31	7,468	-21.2	-33.2	17.7	3.1	3.1	31	7,468	-21.2	-33.2	17.7	3.1	3.1	31	7,468	-21.2	-33.2	17.7	3.1	3.1	31	7,468	-21.2	-33.2	17.7	3.1						
13	31	8,342	-27.7	-38.2	20.6	3.1	3.1	31	8,342	-27.7	-38.2	20.6	3.1	3.1</																										

GREENSBORO, NC 987 MB				GUADALUPE IS., MEXICO 1011 MB				GUAM, MARIANA IS. 998 MB				HILO, HI 1015 MB				HUNTINGTON, WV 989 MB														
100	31	275	19.4	17.4	30	-5	31	23	19.1	15.3	32	6.0	31	111	25.2	23.7	08	-2	31	10	17	19.2	23	1.4	31	246	19.2	17.1	18	-4
950	31	604	21.3	18.7	30	2.2	31	556	19.1	7.0	33	5.6	31	541	23.6	21.7	13	-5	31	586	20.0	18.2	08	1.6	31	592	20.2	17.6	26	3.5
900	31	1	19.1	11.4	26	2.8	31	1,025	21.1	1.4	33	4.2	31	1,014	20.9	18.2	11	1.1	31	1,052	17.2	14.9	08	2.7	31	1,059	18.0	15.3	27	5.2
850	31	1.54	16.3	11.4	26	4.1	31	1,519	20.9	-1.9	33	4.1	31	1,508	18.4	14.6	10	1.4	31	1,538	14.4	11.1	08	3.2	31	1,547	15.3	10.9	27	5.5
800	31	2.4	15.7	6.0	28	4.3	31	2,007	18.7	-3.7	32	2.9	31	2,002	17.1	11.1	1	3.4	31	2,050	14.7	2.9	08	3.5	31	2,048	13.0	5.0	27	5.7
750	31	2,617	10.4	1.5	26	4.9	31	2,565	15.0	-6.3	29	1.6	31	2,574	13.1	7.8	10	3.0	31	2,591	11.2	-5.1	09	3.1	31	2,601	10.6	1.1	27	6.3
700	31	3,189	7.9	-2.4	27	5.0	31	3,168	11.2	-9.3	26	1.6	31	3,152	10.0	3.6	11	3.0	31	3,165	9.3	-10.6	08	3.0	31	3,173	7.5	-2.1	27	7.5
650	31	3,798	4.6	-7.3	22	5.3	31	3,782	7.2	-12.5	27	1.7	31	3,766	6.6	-5.1	11	2.9	31	3,775	6.0	-12.4	08	2.3	31	3,780	4.3	-5.0	28	7.9
600	31	4,444	.9	-11.4	28	5.5	31	4,435	2.8	-16.2	24	2.2	31	4,419	2.8	-5.3	11	2.7	31	4,426	2.3	-15.9	06	1.0	31	4,428	.8	-10.2	27	8.9
550	31	5,140	-3.3	-14.8	28	6.0	31	5,131	-2.1	-21.0	22	2.7	31	5,119	-1.1	-10.6	10	3.1	31	5,124	-1.6	-18.8	11	.5	31	5,123	-3.2	-15.5	28	9.0
500	31	5,888	-12.6	-20.4	28	6.4	31	5,882	-1.1	-25.2	25	3.7	31	5,874	-5.3	-14.6	10	3.4	31	5,876	-6.2	-23.9	23	.8	31	5,871	-7.6	-21.1	27	8.7
450	31	6,586	-12.4	-25.4	28	6.2	31	6,585	-12.8	-30.2	24	4.9	31	6,585	-10.0	-19.2	09	3.9	31	6,592	-11.2	-29.2	24	2.3	30	6,584	-12.5	-25.3	27	9.4
400	31	7,274	-18.1	-32.2	26	5.6	31	7,581	-18.9	-35.7	21	5.8	30	7,594	-15.8	-25.2	10	4.2	31	7,586	-17.4	-35.0	25	4.0	30	7,574	-18.3	-30.7	27	9.6
350	31	7,974	-25.1	-38.9	24	5.3	30	8,252	-26.0	-42.1	23	7.9	30	8,591	-22.5	-31.9	10	4.1	31	8,576	-24.1	-40.3	26	7.3	30	8,560	-25.1	-36.5	27	11.0
300	31	9,676	-33.8	-47.5	28	5.4	30	9,688	-34.3	-49.2	23	10.2	30	9,701	-30.7	-40.4	10	2.8	30	9,678	-32.8	-47.2	25	10.5	30	9,659	-33.6	-43.9	27	12.2
250	31	10,376	-43.6	-56.0	30	5.6	30	10,921	-43.0																					

[illegible]

## Average monthly values

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# RAWINSONDE DATA

Average monthly values

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NORTH PLATTE, NE 918 MB												OAKLAND, CA 1013 MB												
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	Resultant Wind tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	Resultant Wind tens of deg	Speed m p s	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Speed m p s	Resultant Wind tens of deg	Speed m p s
1013	31	140	19.7	14.2	14	4.5	11.0	5.0	31	140	19.7	14.2	14	4.5	11.0	5.0	31	140	19.7	14.2	14	4.5	11.0	5.0
1012	31	139	19.5	14.1	14	4.5	11.0	5.0	31	139	19.5	14.1	14	4.5	11.0	5.0	31	139	19.5	14.1	14	4.5	11.0	5.0
1011	31	138	19.3	13.9	14	4.5	11.0	5.0	31	138	19.3	13.9	14	4.5	11.0	5.0	31	138	19.3	13.9	14	4.5	11.0	5.0
1010	31	137	19.1	13.7	14	4.5	11.0	5.0	31	137	19.1	13.7	14	4.5	11.0	5.0	31	137	19.1	13.7	14	4.5	11.0	5.0
1009	31	136	18.9	13.5	14	4.5	11.0	5.0	31	136	18.9	13.5	14	4.5	11.0	5.0	31	136	18.9	13.5	14	4.5	11.0	5.0
1008	31	135	18.7	13.3	14	4.5	11.0	5.0	31	135	18.7	13.3	14	4.5	11.0	5.0	31	135	18.7	13.3	14	4.5	11.0	5.0
1007	31	134	18.5	13.1	14	4.5	11.0	5.0	31	134	18.5	13.1	14	4.5	11.0	5.0	31	134	18.5	13.1	14	4.5	11.0	5.0
1006	31	133	18.3	12.9	14	4.5	11.0	5.0	31	133	18.3	12.9	14	4.5	11.0	5.0	31	133	18.3	12.9	14	4.5	11.0	5.0
1005	31	132	18.1	12.7	14	4.5	11.0	5.0	31	132	18.1	12.7	14	4.5	11.0	5.0	31	132	18.1	12.7	14	4.5	11.0	5.0
1004	31	131	17.9	12.5	14	4.5	11.0	5.0	31	131	17.9	12.5	14	4.5	11.0	5.0	31	131	17.9	12.5	14	4.5	11.0	5.0
1003	31	130	17.7	12.3	14	4.5	11.0	5.0	31	130	17.7	12.3	14	4.5	11.0	5.0	31	130	17.7	12.3	14	4.5	11.0	5.0
1002	31	129	17.5	12.1	14	4.5	11.0	5.0	31	129	17.5	12.1	14	4.5	11.0	5.0	31	129	17.5	12.1	14	4.5	11.0	5.0
1001	31	128	17.3	11.9	14	4.5	11.0	5.0	31	128	17.3	11.9	14	4.5	11.0	5.0	31	128	17.3	11.9	14	4.5	11.0	5.0
1000	31	127	17.1	11.7	14	4.5	11.0	5.0	31	127	17.1	11.7	14	4.5	11.0	5.0	31	127	17.1	11.7	14	4.5	11.0	5.0
999	31	126	16.9	11.5	14	4.5	11.0	5.0	31	126	16.9	11.5	14	4.5	11.0	5.0	31	126	16.9	11.5	14	4.5	11.0	5.0
998	31	125	16.7	11.3	14	4.5	11.0	5.0	31	125	16.7	11.3	14	4.5	11.0	5.0	31	125	16.7	11.3	14	4.5	11.0	5.0
997	31	124	16.5	11.1	14	4.5	11.0	5.0	31	124	16.5	11.1	14	4.5	11.0	5.0	31	124	16.5	11.1	14	4.5	11.0	5.0
996	31	123	16.3	10.9	14	4.5	11.0	5.0	31	123	16.3	10.9	14	4.5	11.0	5.0	31	123	16.3	10.9	14	4.5	11.0	5.0
995	31	122	16.1	10.7	14	4.5	11.0	5.0	31	122	16.1	10.7	14	4.5	11.0	5.0	31	122	16.1	10.7	14	4.5	11.0	5.0
994	31	121	15.9	10.5	14	4.5	11.0	5.0	31	121	15.9	10.5	14	4.5	11.0	5.0	31	121	15.9	10.5	14	4.5	11.0	5.0
993	31	120	15.7	10.3	14	4.5	11.0	5.0	31	120	15.7	10.3	14	4.5	11.0	5.0	31	120	15.7	10.3	14	4.5	11.0	5.0
992	31	119	15.5	10.1	14	4.5	11.0	5.0	31	119	15.5	10.1	14	4.5	11.0	5.0	31	119	15.5	10.1	14	4.5	11.0	5.0
991	31	118	15.3	9.9	14	4.5	11.0	5.0	31	118	15.3	9.9	14	4.5	11.0	5.0	31	118	15.3	9.9	14	4.5	11.0	5.0
990	31	117	15.1	9.7	14	4.5	11.0	5.0	31	117	15.1	9.7	14	4.5	11.0	5.0	31	117	15.1	9.7	14	4.5	11.0	5.0
989	31	116	14.9	9.5	14	4.5	11.0	5.0	31	116	14.9	9.5	14	4.5	11.0	5.0	31	116	14.9	9.5	14	4.5	11.0	5.0
988	31	115	14.7	9.3	14	4.5	11.0	5.0	31	115	14.7	9.3	14	4.5	11.0	5.0	31	115	14.7	9.3	14	4.5	11.0	5.0
987	31	114	14.5	9.1	14	4.5	11.0	5.0	31	114	14.5	9.1	14	4.5	11.0	5.0	31	114	14.5	9.1	14	4.5	11.0	5.0
986	31	113	14.3	8.9	14	4.5	11.0	5.0	31	113	14.3	8.9	14	4.5	11.0	5.0	31	113	14.3	8.9	14	4.5	11.0	5.0
985	31	112	14.1	8.7	14	4.5	11.0	5.0	31	112	14.1	8.7	14	4.5	11.0	5.0	31	112	14.1	8.7	14	4.5	11.0	5.0
984	31	111	13.9	8.5	14	4.5	11.0	5.0	31	111	13.9	8.5	14	4.5	11.0	5.0	31	111	13.9	8.5	14	4.5	11.0	5.0
983	31	110	13.7	8.3	14	4.5	11.0	5.0	31	110	13.7	8.3	14	4.5	11.0	5.0	31	110	13.7	8.3	14	4.5	11.0	5.0
982	31	109	13.5	8.1	14	4.5	11.0	5.0	31	109	13.5	8.1	14	4.5	11.0	5.0	31	109	13.5	8.1	14	4.5	11.0	5.0
981	31	108	13.3	7.9	14	4.5	11.0	5.0	31	108	13.3	7.9	14	4.5	11.0	5.0	31	108	13.3	7.9	14	4.5	11.0	5.0
980	31	107	13.1	7.7	14	4.5	11.0	5.0	31	107	13.1	7.7	14	4.5	11.0	5.0	31	107	13.1	7.7	14	4.5	11.0	5.0
979	31	106	12.9	7.5	14	4.5	11.0	5.0	31	106	12.9	7.5	14	4.5	11.0	5.0	31	106	12.9	7.5	14	4.5	11.0	5.0
978	31	105	12.7	7.3	14	4.5	11.0	5.0	31	105	12.7	7.3	14	4.5	11.0	5.0	31	105	12.7	7.3	14	4.5	11.0	5.0
977	31	104	12.5	7.1	14	4.5	11.0	5.0	31	104	12.5	7.1	14	4.5	11.0	5.0	31	104	12.5	7.1	14	4.5	11.0	5.0
976	31	103	12.3	6.9	14	4.5	11.0	5.0	31	103	12.3	6.9	14	4.5	11.0	5.0	31	103	12.3	6.9	14	4.5	11.0	5.0
975	31	102	12.1	6.7	14	4.5	11.0	5.0	31	102	12.1	6.7	14	4.5	11.0	5.0	31	102	12.1	6.7	14	4.5	11.0	5.0
974	31	101	11.9	6.5	14	4.5	11.0	5.0	31	101	11.9	6.5	14	4.5	11.0	5.0	31	101	11.9	6.5	14	4.5	11.0	5.0
973	31	100	11.7	6.3	14	4.5	11.0	5.0	31	100	11.7	6.3	14	4.5	11.0	5.0	31	100	11.7	6.3	14	4.5	11.0	5.0
972	31	99	11.5	6.1	14	4.5	11.0	5.0	31	99	11.5	6.1	14	4.5	11.0	5.0	31	99	11.5	6.1	14	4.5	11.0	5.0
971	31	98	11.3	5.9	14	4.5	11.0	5.0	31	98	11.3	5.9	14	4.5	11.0	5.0	31	98	11.3	5.9	14	4.5	11.0	5.0
970	31	97	11.1	5.7	14	4.5	11.0	5.0	31	97	11.1	5.7	14	4.5	11.0	5.0	31	97	11.1	5.7	14	4.5	11.0	5.0
969	31	96	10.9	5.5	14	4.5	11.0	5.0	31	96	10.9	5.5	14	4.5	11.0	5.0	31	96	10.9	5.5	14	4.5	11.0	5.0
968	31	95	10.7	5.3	14	4.5	11.0	5.0	31	95	10.7	5.3	14	4.5	11.0	5.0	31	95	10.7	5.3	14	4.5	11.0	5.0
967	31	94	10.5	5.1	14	4.5	11.0	5.0	31	94	10.5	5.1	14	4.5	11.0	5.0	31	94	10.5	5.1	14	4.5	11.0	5.0
966	31	93	10.3	4.9	14	4.5	11.0	5.0	31	93	10.3	4.9	14	4.5	11.0	5.0	31	93	10.3	4.9	14	4.5	11.0	5.0
965	31	92	10.1	4.7	14	4.5	11.0	5.0	31	92	10.1	4.7	14	4.5	11.0	5.0	31	92	10.1	4.7	14	4.5	11.0	5.0
964	31	91	9.9	4.5	14	4.5	11.0	5.0	31	91	9.9	4.5	14	4.5	11.0	5.0	31	91	9.9	4.5	14	4.5	11.0	5.0
963	31	90	9.7	4.3	14	4.5	11.0	5.0	31	90	9.7	4.3	14	4.5	11.0	5.0	31	90	9.7	4.3	14	4.5	11.0	5.0
962	31	89	9.5	4.1	14	4.5	11.0	5.0	31	89	9.5	4.1	14	4.5	11.0	5.0	31	89	9.5	4				



# RAWINSONDE DATA

Average monthly values

January 1972

LAKE CITY, UT										LAKE CITY, UT										LAKE CITY, UT										LAKE CITY, UT									
999 mb										999 mb										999 mb										999 mb									
Standard pressure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction tens of deg	Speed m.p.s.			
1000	31	174	19.2	16.5	27	1.1	11	174	19.2	16.5	27	1.1	11	174	19.2	16.5	27	1.1	11	174	19.2	16.5	27	1.1	11	174	19.2	16.5	27	1.1	11	174	19.2	16.5	27	1.1			
950	31	587	21.1	18.2	26	3.1	11	587	21.1	18.2	26	3.1	11	587	21.1	18.2	26	3.1	11	587	21.1	18.2	26	3.1	11	587	21.1	18.2	26	3.1	11	587	21.1	18.2	26	3.1			
900	31	1,054	18.4	13.7	28	4.2	11	1,054	18.4	13.7	28	4.2	11	1,054	18.4	13.7	28	4.2	11	1,054	18.4	13.7	28	4.2	11	1,054	18.4	13.7	28	4.2	11	1,054	18.4	13.7	28	4.2			
850	31	1,543	15.8	8.6	27	4.5	11	1,543	15.8	8.6	27	4.5	11	1,543	15.8	8.6	27	4.5	11	1,543	15.8	8.6	27	4.5	11	1,543	15.8	8.6	27	4.5	11	1,543	15.8	8.6	27	4.5			
800	31	2,038	13.2	2.7	27	5.0	11	2,038	13.2	2.7	27	5.0	11	2,038	13.2	2.7	27	5.0	11	2,038	13.2	2.7	27	5.0	11	2,038	13.2	2.7	27	5.0	11	2,038	13.2	2.7	27	5.0			
750	31	2,539	10.7	-2.4	28	5.4	11	2,539	10.7	-2.4	28	5.4	11	2,539	10.7	-2.4	28	5.4	11	2,539	10.7	-2.4	28	5.4	11	2,539	10.7	-2.4	28	5.4	11	2,539	10.7	-2.4	28	5.4			
700	31	3,042	8.3	-7.1	27	5.8	11	3,042	8.3	-7.1	27	5.8	11	3,042	8.3	-7.1	27	5.8	11	3,042	8.3	-7.1	27	5.8	11	3,042	8.3	-7.1	27	5.8	11	3,042	8.3	-7.1	27	5.8			
650	31	3,547	5.8	-12.7	27	6.3	11	3,547	5.8	-12.7	27	6.3	11	3,547	5.8	-12.7	27	6.3	11	3,547	5.8	-12.7	27	6.3	11	3,547	5.8	-12.7	27	6.3	11	3,547	5.8	-12.7	27	6.3			
600	31	4,052	3.3	-17.2	27	6.8	11	4,052	3.3	-17.2	27	6.8	11	4,052	3.3	-17.2	27	6.8	11	4,052	3.3	-17.2	27	6.8	11	4,052	3.3	-17.2	27	6.8	11	4,052	3.3	-17.2	27	6.8			
550	31	4,557	0.8	-21.7	27	7.3	11	4,557	0.8	-21.7	27	7.3	11	4,557	0.8	-21.7	27	7.3	11	4,557	0.8	-21.7	27	7.3	11	4,557	0.8	-21.7	27	7.3	11	4,557	0.8	-21.7	27	7.3			
500	31	5,062	-1.7	-26.2	27	7.8	11	5,062	-1.7	-26.2	27	7.8	11	5,062	-1.7	-26.2	27	7.8	11	5,062	-1.7	-26.2	27	7.8	11	5,062	-1.7	-26.2	27	7.8	11	5,062	-1.7	-26.2	27	7.8			
450	31	5,567	-4.2	-30.7	27	8.3	11	5,567	-4.2	-30.7	27	8.3	11	5,567	-4.2	-30.7	27	8.3	11	5,567	-4.2	-30.7	27	8.3	11	5,567	-4.2	-30.7	27	8.3	11	5,567	-4.2	-30.7	27	8.3			
400	31	6,072	-6.7	-35.2	27	8.8	11	6,072	-6.7	-35.2	27	8.8	11	6,072	-6.7	-35.2	27	8.8	11	6,072	-6.7	-35.2	27	8.8	11	6,072	-6.7	-35.2	27	8.8	11	6,072	-6.7	-35.2	27	8.8			
350	31	6,577	-9.2	-39.7	27	9.3	11	6,577	-9.2	-39.7	27	9.3	11	6,577	-9.2	-39.7	27	9.3	11	6,577	-9.2	-39.7	27	9.3	11	6,577	-9.2	-39.7	27	9.3	11	6,577	-9.2	-39.7	27	9.3			
300	31	7,082	-11.7	-44.2	27	9.8	11	7,082	-11.7	-44.2	27	9.8	11	7,082	-11.7	-44.2	27	9.8	11	7,082	-11.7	-44.2	27	9.8	11	7,082	-11.7	-44.2	27	9.8	11	7,082	-11.7	-44.2	27	9.8			
250	31	7,587	-14.2	-48.7	27	10.3	11	7,587	-14.2	-48.7	27	10.3	11	7,587	-14.2	-48.7	27	10.3	11	7,587	-14.2	-48.7	27	10.3	11	7,587	-14.2	-48.7	27	10.3	11	7,587	-14.2	-48.7	27	10.3			
200	31	8,092	-16.7	-53.2	27	10.8	11	8,092	-16.7	-53.2	27	10.8	11	8,092	-16.7	-53.2	27	10.8	11	8,092	-16.7	-53.2	27	10.8	11	8,092	-16.7	-53.2	27	10.8	11	8,092	-16.7	-53.2	27	10.8			
150	31	8,597	-19.2	-57.7	27	11.3	11	8,597	-19.2	-57.7	27	11.3	11	8,597	-19.2	-57.7	27	11.3	11	8,597	-19.2	-57.7	27	11.3	11	8,597	-19.2	-57.7	27	11.3	11	8,597	-19.2	-57.7	27	11.3			
100	31	9,102	-21.7	-62.2	27	11.8	11	9,102	-21.7	-62.2	27	11.8	11	9,102	-21.7	-62.2	27	11.8	11	9,102	-21.7	-62.2	27	11.8	11	9,102	-21.7	-62.2	27	11.8	11	9,102	-21.7	-62.2	27	11.8			
50	31	9,607	-24.2	-66.7	27	12.3	11	9,607	-24.2	-66.7	27	12.3	11	9,607	-24.2	-66.7	27	12.3	11	9,607	-24.2	-66.7	27	12.3	11	9,607	-24.2	-66.7	27	12.3	11	9,607	-24.2	-66.7	27	12.3			
0	31	10,112	-26.7	-71.2	27	12.8	11	10,112	-26.7	-71.2	27	12.8	11	10,112	-26.7	-71.2	27	12.8	11	10,112	-26.7	-71.2	27	12.8	11	10,112	-26.7	-71.2	27	12.8	11	10,112	-26.7	-71.2	27	12.8			

## Average monthly values

WASHINGTON TULLIES INT. AP 1007 MB										WAYNESSE, GA 1011 MB										WEST PALM BEACH, FL 1017 MB										WINNEBUCCA, NV 888 MB										WINSLOW, AZ 852 MB									
Standard pressure surface mb.		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind															
										Direction tens of deg		Speed m.p.a.								Direction tens of deg		Speed m.p.a.						Direction tens of deg		Speed m.p.a.				Direction tens of deg		Speed m.p.a.													
54C	31	15.8	17.0	29	3	10.5	10.9	21.5	20.1	25	6	31	7	24.5	21.8	10	7	31	1,312	12.8	5.1	17	9	31	1,487	16.4	6.7	18	1.5																				
1300	31	14.8	19.8	17.3	31	7	10	142	22.7	24.4	24	1.0	31	151	26.3	23.4	12	1.8																															
980	31	15.8	19.8	14.4	31	3.0	10	591	22.7	17.8	24	1.8	31	603	22.8	20.3	14	3.6																															
900	31	1,055	17.5	12.2	31	3.7	30	1,062	20.7	14.9	23	1.1	31	1,074	20.2	16.0	13	3.2																															
850	31	1,442	14.9	5.29	4.3	3	1,553	16.9	12.1	21	1.3	31	1,566	17.5	12.8	12	2.9	31	1,490	18.2	3.7	22	7	27	1,516	17.1	7.0	19	1.3																				
800	31	2,053	12.4	3.5	2,069	14.2	5.9	1.1	31	2,083	14.6	7.5	13	2.4	31	2,007	16.0	1.2	26	1.7	31	2,033	19.2	4.8	26	2.9																							
750	31	2,582	9.6	1.7	2,582	11.6	1.7	21	1.3	31	2,627	11.6	3.3	14	2.1	31	2,553	12.6	1.7	25	2.4	31	2,584	15.5	2.3	25	3.2																						
700	31	3,162	6.3	2.5	3,162	8.1	2.5	23	1.3	31	3,201	8.5	4.5	15	2.0	31	3,127	8.4	4.3	23	3.7	31	3,165	10.9	4.6	22	3.8																						
650	31	3,767	3.7	8.4	3,767	4.8	8.4	24	1.1	31	3,810	4.8	4.6	17	1.6	31	3,735	3.9	6.7	21	5.4	31	3,779	6.3	4.8	22	4.0																						
600	31	4,413	1.1	12.2	27	8.9	3.9	4.4	1.8	10.2	23	6.3	4	4,459	9	7.5	18	1.7	31	4,380	-7.1	10.2	22	7.0	31	4,429	1.5	10.5	22	3.6																			
550	31	5,106	-3.6	17.2	27	9.5	10	5,139	-2.4	16.1	31	5.3	31	5,154	-3.0	11.9	17	1.2	31	5,069	-5.6	15.4	21	8.2	31	5,124	-3.4	14.7	22	4.0																			
500	31	5,853	-8.1	22.2	27	9.6	5	5,889	-7.3	22.1	34	7.3	31	5,903	-7.1	17.4	16	6.3	31	5,810	-10.5	20.6	23	9.5	31	5,871	-8.5	21.8	24	4.3																			
450	31	6,665	-12.9	26.3	27	10.7	30	6,704	-11.8	25.7	33	1.2	31	6,717	-12.1	23.5	06	5.3	31	6,613	-15.8	26.8	23	9.8	31	6,680	-13.3	27.6	25	4.2																			
400	31	7,552	-18.9	32.8	27	10.9	30	7,595	-17.9	31.4	35	1.3	31	7,609	-17.6	29.2	04	1.3	31	7,491	-22.0	35.7	23	10.4	31	7,566	-19.5	33.1	25	4.7																			
350	31	8,556	-25.9	40.1	28	11.8	30	8,584	-24.8	38.1	33	2.2	31	8,598</																																			

# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

AUGUST 1979

Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
MASSA 1000 OB. EL. (ATMOSP.) #1										MASSA 1000 OB. EL. (ATMOSP.) #2									
Air mass										Air mass									
1.34	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34		4.64	3.71	2.78	1.34	*	1.34	2.01	2.67	3.34	4.64
1.18	1.27	1.35	1.47	1.60	1.47	1.35	1.27	1.18	1.64	.76	.90	1.07	1.25	1.11	.94	.81	.71		
1.14	1.22	1.31	1.42	1.51	1.42	1.31	1.22	1.14	.64	.76	.88	1.07	1.30	1.11	.94	.81	.70		
1.16	1.24	1.32	1.42	1.55	1.42	1.32	1.24	1.16	.63	.74	.88	1.07	1.32	1.08	.91	.79	.69		
1.17	1.25	1.33	1.43	1.58	1.43	1.33	1.25	1.17	.65	.76	.90	1.09	1.22	1.08	.91	.79	.69		
1.15	1.24	1.32	1.43	1.55	1.43	1.32	1.24	1.15	.67	.78	.92	1.10	1.24	1.09	.92	.80	.70		
1.11	1.20	1.30	1.41	1.50	1.41	1.30	1.20	1.11	.73	.84	.98	1.02	1.25	1.02	.83	.76	.66		
1.11	1.18	1.27	1.39	1.50	1.39	1.27	1.18	1.11	.54	.68	.82	.98	1.25	1.02	.83	.76	.66		
1.13	1.19	1.29	1.41	1.55	1.41	1.29	1.19	1.13	.75	.87	.99	1.02	1.23	.98	.80	.73	.63		
1.13	1.22	1.31	1.42	1.50	1.42	1.31	1.22	1.13	.75	.87	.99	1.02	1.23	.98	.80	.73	.63		
1.16	1.22	1.31	1.42	1.54	1.42	1.31	1.22	1.16	.75	.87	.99	1.00	1.23	.98	.80	.73	.63		
1.16	1.23	1.31	1.42	1.55	1.40	1.30	1.21	1.14	.75	.87	.99	1.00	1.23	.98	.80	.73	.63		
1.17	1.24	1.32	1.45	1.55	1.45	1.35	1.23	1.15	.76	.86	.97	1.14	1.34	1.22	1.05	.92	.81		
1.18	1.26	1.35	1.45	1.55	1.45	1.35	1.23	1.18	.82	.92	1.04	1.18	1.34	1.22	1.05	.92	.81		
1.18	1.26	1.35	1.48	1.61	1.47	1.36	1.27	1.21	.82	.92	1.04	1.20	1.39	1.17	.99	.86	.77		
1.17	1.24	1.32	1.42	1.57	1.41	1.30	1.20	1.12	.81	.91	1.02	1.19	1.39	1.17	.99	.86	.77		
1.16	1.24	1.33	1.45	1.58	1.41	1.33	1.23	1.17	.81	.92	1.04	1.21	1.38	1.22	1.07	.97	.87		
1.18	1.26	1.35	1.46	1.60	1.47	1.36	1.27	1.21	.81	.92	1.04	1.21	1.38	1.22	1.07	.97	.87		
Average	1.16	1.24	1.32	1.43	1.56	1.41	1.30	1.22	.91	1.00	1.12	1.26	1.42	1.28	1.16	1.06	.98		
									.95	1.03	1.13	1.27	1.46	1.30	1.15	1.05	.96		
									.95	1.03	1.14	1.24	1.45	1.27	1.12	1.00	.88		
									.96	1.00	1.12	1.28	1.48	1.24	1.11	.99	.90		
									.84	.95	1.07	1.23	1.42	1.22	1.06	.93	.81		
									.96	.96	1.23	1.41	1.24	1.12	1.06	.97	.85		
									.86	.96	1.08	1.25	1.41	1.19	1.06	.97	.85		
									.86	.98	1.09	1.24	1.40	1.23	1.08	.96	.87		
									.76	.81	.96	1.14	1.34	1.22	1.05	.93	.79		
									.74	.85	.97	1.18	1.36	1.26	1.08	.90	.78		
									.79	.89	1.01	1.17	1.35	1.08	.90	.78	.69		
									.77	.86	1.01	1.19	1.36	1.14	1.00	.86	.73		
Average	.78	.89	.98	1.16	1.36	1.17	1.03	.89	.78	.89	.98	1.16	1.36	1.17	1.03	.89	.79		

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . . .	153	181	185	185	186	155	162	148	94	75	148	259	182	90	114	114	163	108	114	114	114	114	114	114	114	124	114	114	114	114	114	



# REFERENCE NOTES

OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES: Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters  
 °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$   
 1 inch = 25.4 millimeters  
 1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- # No Storm Data Report received for this State.
- ◇ Report Incomplete.
- + Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

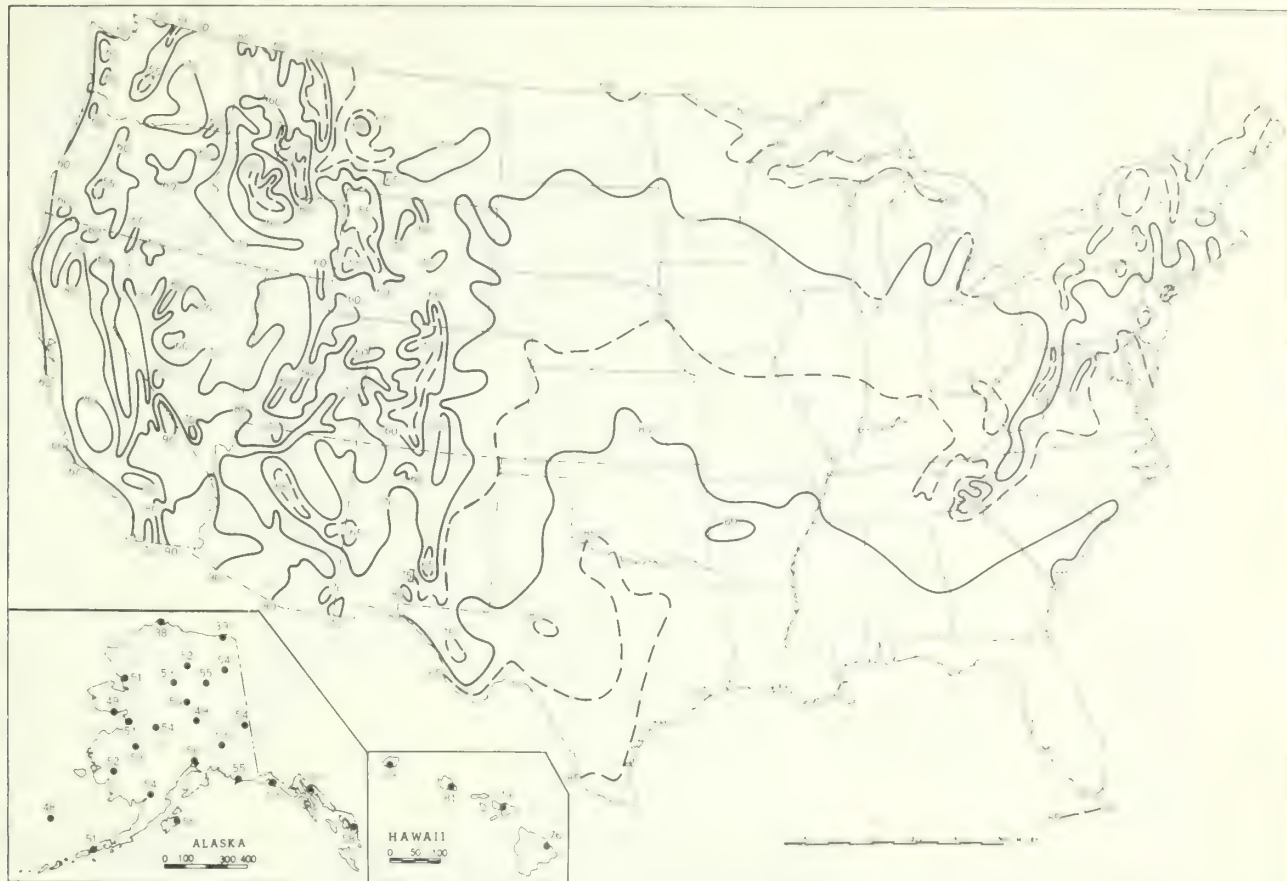
SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeterminable
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Sand
BN	Blowing Sand	GF	Ground Fog	K	Smoke	S	Slight Haze-indeterminable
D	Dust	H	Haze	KI	Intense Smoke		
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), August.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), August 1979

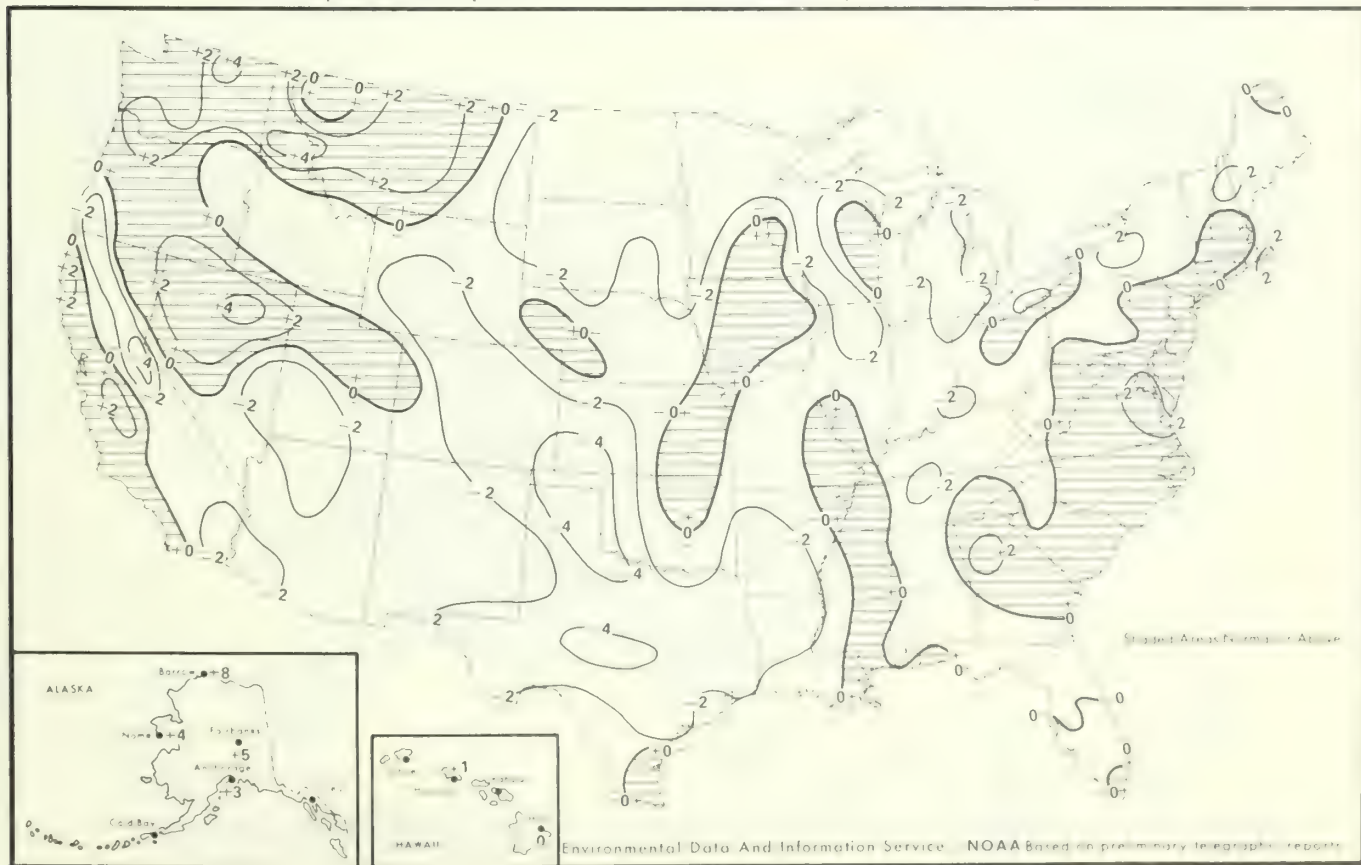




Chart II. A. Total Precipitation (Inches), August 1979



B. Percentage of Normal Precipitation, August 1979

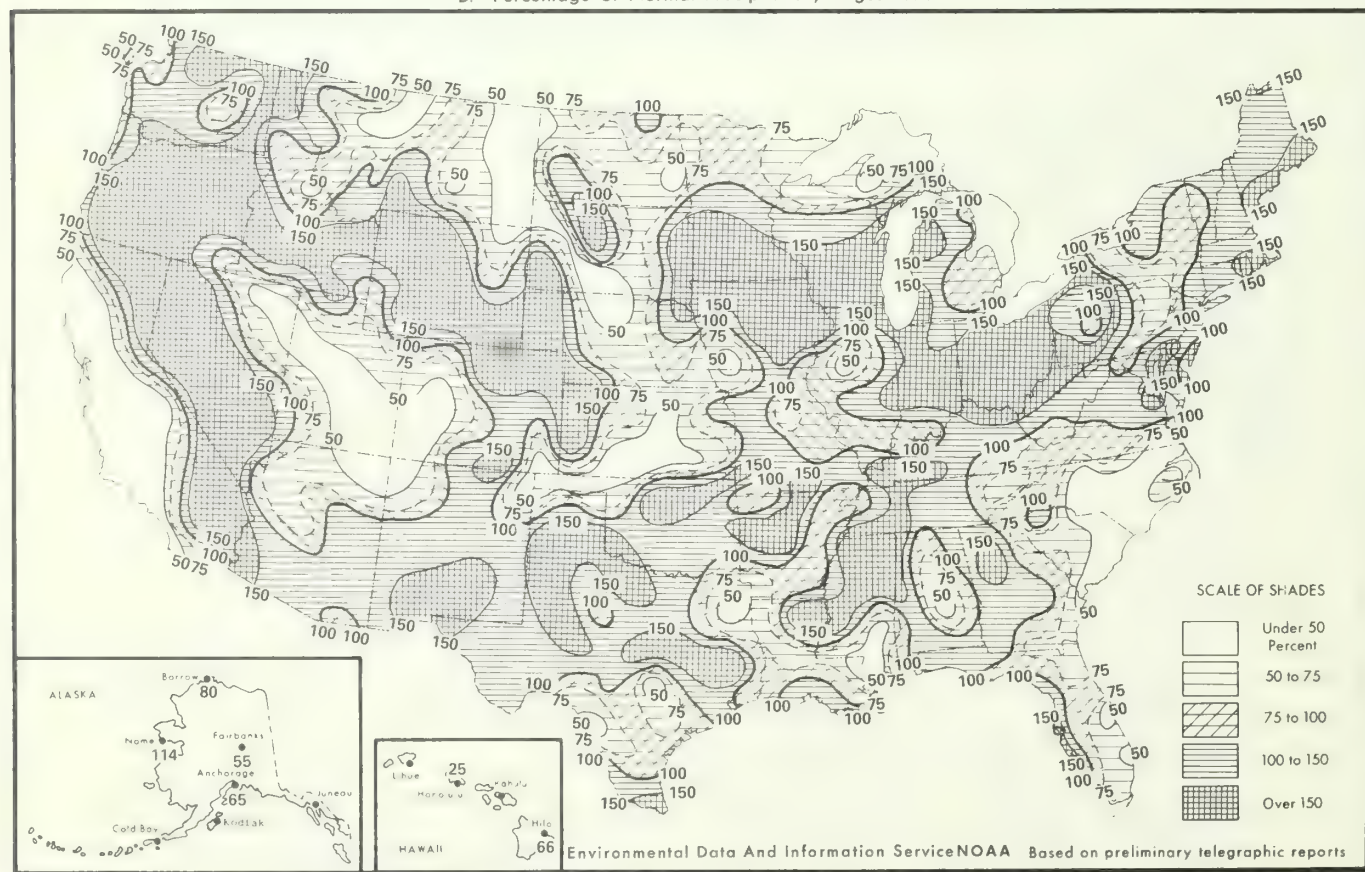
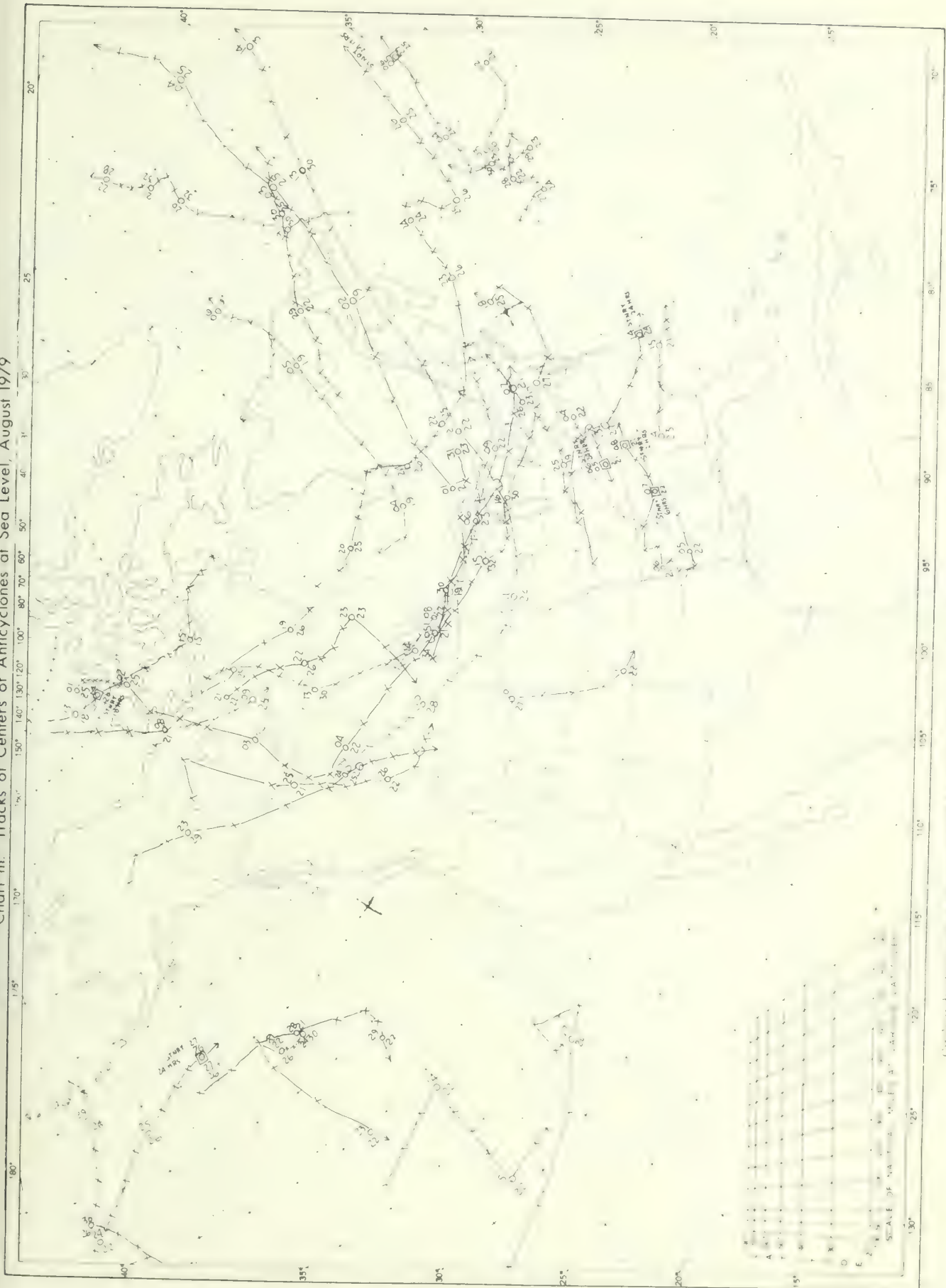


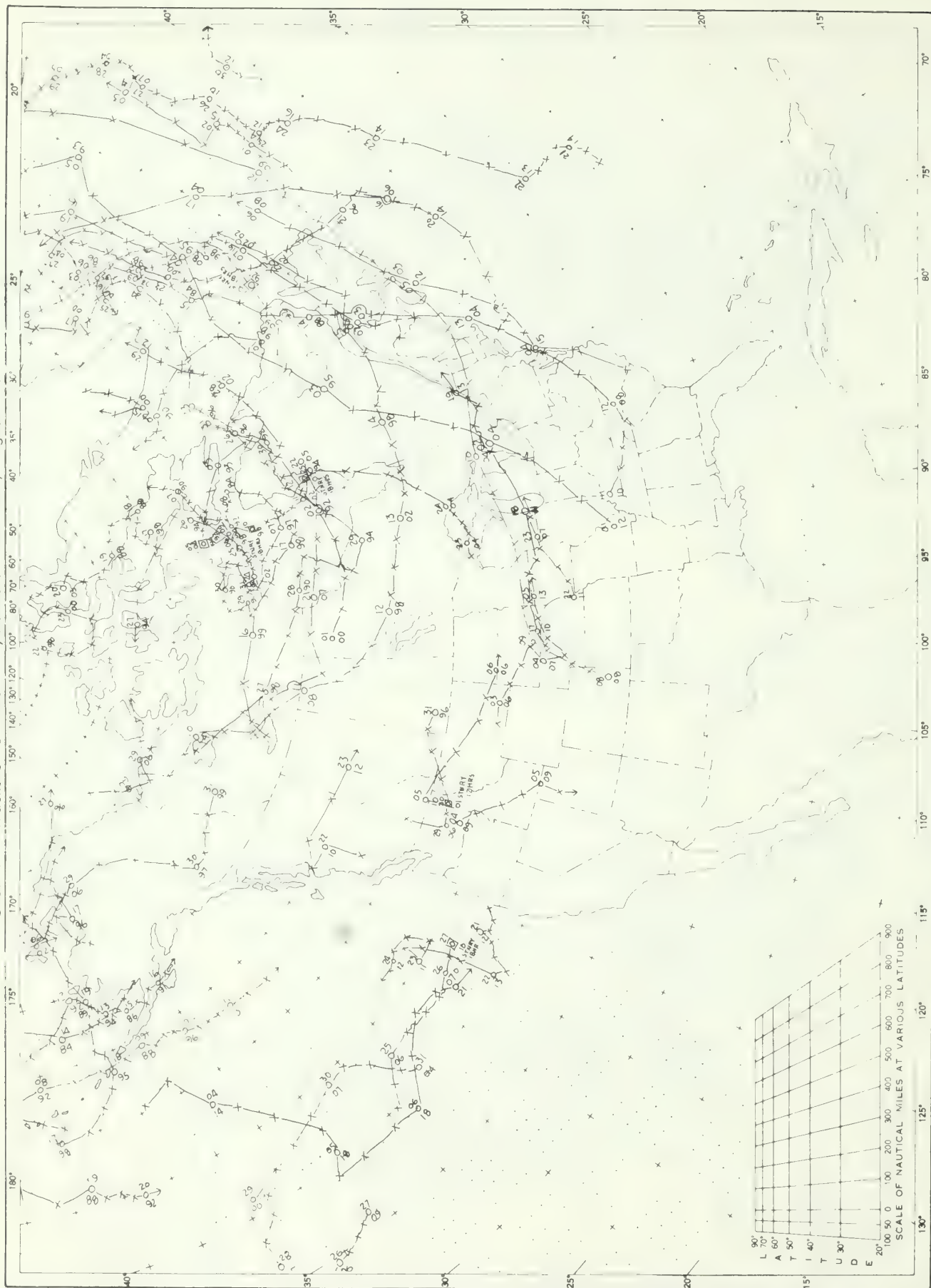


Chart III. Tracks of Anticyclones at Sea Level, August 1979



Circle indicates position of center at 2000 GMT. Figure above circle indicates date. Figure below pressure to nearest millibar.  
 X's indicate centering 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates information at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IV Tracks of Centers of Cyclones at Sea Level, August 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. 'X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.





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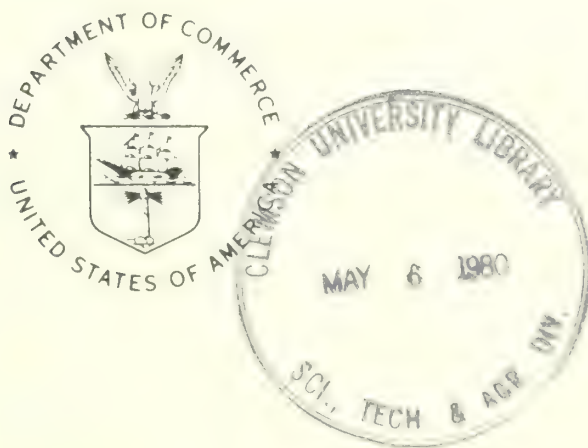
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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Edward E. Hurrell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

SEPTEMBER 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Wet, cloudy, and humid weather prevailed over the South and East, as two hurricanes and other storm systems moved across those regions during September. Rainfall totaled more than 12 inches along most of the Gulf Coast, Florida, and the southeastern Coastal Plain. Over 23 inches in 2 days drenched Freeport, TX, just southwest of Galveston. Record dryness occurred from Michigan to central Texas and over parts of the West. It was also unseasonably warm in the West, and a prolonged heat wave baked California during the first three weeks. Pleasant, sunny weather was the rule in the Rockies.

Hurricane David, after killing more than 1,000 people in the Dominican Republic on August 31 reached southern Florida three days later. It marched northward and triggered heavy rains, gusty winds, flash floods, and a few tornadoes from Florida to Connecticut. More than 10 inches of rain soaked the eastern Carolinas on the 5th.

Meanwhile, dry weather developed from Michigan to central Texas and over most of the West. Unseasonable warmth settled over the West, with several stations measuring 8 to 10° above normal.

Hurricane Frederic slammed into the central Gulf Coast near Mobile, AL, on the 13th. It brought heavy rains, up to 9 inches along the coast and 4 to 6

inches across its track through Tennessee into western New York.

Dry weather continued from Michigan to central Texas and in the Far West during the week of the 10th-16th.

A heat wave became concentrated over California, with temperatures averaging 9 to 11° above normal during the second week.

A low pressure storm system developed along the Texas coast on the 18th and triggered heavy rains over the southeastern third of the Nation. Torrential amounts fell along most of the Texas and Louisiana coasts. Freeport, TX, just southwest of Galveston, received more than 20 inches. Elsewhere, dry weather was the general rule.

The California heat wave abated during the third week, but it was still unseasonably warm over the West.

Heavy rains fell over the Southeast in association with a stationary front during the last week of September. Three to 6 inches soaked some sections from Florida into Tennessee and Virginia. Light showers heralded the beginning of the fall rain season over parts of the West.

# HURRICANE GLORIA

September 4 - 15, 1979

National Hurricane Center, NOAA  
Miami, Florida

Gloria began as a well organized African disturbance and became a tropical depression soon after moving off the African coast on 4 September. Instead of a westerly course, as is usual for early September, the eleventh tropical depression of the season turned northwest and passed just northeast of the Cape Verde islands by 5 September. This northeasterly course can be attributed to the influence of a pronounced trough in the westerlies over the east Central North Atlantic.

Based on satellite estimates of wind speeds, the depression was designated Gloria as it attained tropical storm strength on 6 September. It reached hurricane strength early on the following day. During this period Gloria was moving on a steady westnorthwest course around 15 kts.

Soon after becoming a hurricane, Gloria turned more

toward the northwest and slowed to 10 kts. On 10 September, rising pressure north of the storm effectively blocked Gloria and produced a slow westward drift for two days. Gloria temporarily lost hurricane strength on the 20th but regained it on 11 September as the storm recurved toward the northeast.

A rather rapid acceleration toward the northeast developed in the following 48 hours. Satellite classifications indicated Gloria reached maximum strength on 13 September with winds estimated 85 kts. The storm merged with a large low pressure system north of the Azores islands and lost tropical characteristics on 15 September.

Gloria was a threat only to marine interests but there have been no reports of damage sustained by shipping.

# HURRICANE GLORIA

September 4-15, 1979

DATE	TIME (GMT)	LATITUDE	LONGITUDE	PRESSURE (MB)	WIND (KT)	STAGE
4	1200	15.5	21.0	1005	25	Tropical depression
	1800	16.5	22.5			
5	0000	17.5	24.0			
	0600	18.5	25.5			
	1200	19.0	27.0	1002	30	
	1800	19.8	28.8			
6	0000	20.5	30.3			
	0600	21.2	32.0			
	1200	22.0	33.8	1000	35	Tropical storm
	1800	22.5	35.5	998	45	
7	0000	23.2	36.8	995	55	Hurricane
	0600	24.4	37.2	992	65	
	1200	25.6	38.0			
	1800	26.4	38.7	988	70	
8	0000	27.0	39.2	985	75	
	0600	27.5	40.0			
	1200	28.0	40.3			
	1800	28.6	41.0			
9	0000	29.3	41.7			
	0600	29.9	42.5			
	1200	30.4	43.2			
	1800	31.0	44.0	988	70	
10	0000	31.5	45.0	992	65	
	0600	31.2	45.8			
	1200	31.0	46.8			
	1800	31.1	47.0	994	60	
11	0000	31.3	47.4	995	55	Tropical storm
	0600	31.4	47.9			
	1200	31.6	48.1	994	60	
	1800	31.8	48.4	992	65	
12	0000	32.2	48.6	988	70	Hurricane
	0600	32.4	48.6	985	75	
	1200	32.8	48.3	980	80	
	1800	33.2	47.8	975	85	
13	0000	33.9	47.0			
	0600	34.5	46.0			
	1200	35.0	45.0			
	1800	36.0	43.8			
14	0000	37.0	41.5			
	0600	38.5	39.5	980	80	
	1200	40.2	37.8	985	75	
	1800	42.0	35.8	988	70	
15	0000	43.4	34.0	992	65	Extratropical
	0600	45.0	32.0	994	60	



# HURRICANE HENRI

September 14 - 24, 1979

National Hurricane Center, NOAA  
Miami, Florida

Henri followed an unusual track in the Gulf of Mexico. At one time or another during its life it headed in each direction of the compass. It was also one of the few storms to reach hurricane strength in the Gulf of Mexico during the heart of the hurricane season and subsequently fail to make landfall.

Henri formed from an African wave which moved into the extreme northwest Caribbean Sea on 14 September. On that day a NOAA reconnaissance flight found that a closed low-level circulation had formed near Cozumel Island. However, during the morning of 15 September satellite pictures indicated that the circulation was centered north of the northeastern tip of the Yucatan Peninsula. This was confirmed by Air Force Reconnaissance data later in the day. It is uncertain whether the original center moved northward over northeast Yucatan during the previous night, or whether a new center formed in the broad envelope of low pressure as the original center dissipated.

During the following twenty-four hours the depression moved westward under the influence of a high pressure ridge to the north. The circulation became somewhat better organized and winds increased to tropical storm strength, due in part to the pressure gradient between the tropical system and the ridge to the north. The building ridge had the additional influence of causing the storm to turn toward the southwest into the Bay of Campeche. A brief period of rather rapid strengthening occurred between 0000 GMT and 1200 GMT, 17 September, as the central pressure fell from 995 to about 983 mbs, and Henri became the

fifth hurricane of 1979. Henri turned toward the northwest as the ridge over the northwest Gulf of Mexico weakened, but the movement became slow and erratic as the hurricane was embedded in a broad area of low pressure with an absence of any established steering current.

Henri maintained hurricane strength for only about twenty-four hours. One factor which may have contributed to its weakening was that some of the low-level inflow came from off the land mass of Mexico, thus restricting the storm's moisture supply. This was evidenced by the steady decrease in convection from 18 September until 20 September, during which time Henri weakened from a hurricane to a tropical depression.

On 20 September the depression turned toward the northeast and headed in that general direction for the next three days until it finally lost identity as it merged with a frontal trough in the northeast Gulf of Mexico on 24 September.

Henri attained its maximum strength during the morning of 17 September, when surface winds were estimated at 75 kts and the central pressure was about 983 mbs. Henri threatened the southwest coastline of the Bay of Campeche for a time but did not make landfall. The hurricane also hampered efforts to control a runaway oil well in the Bay of Campeche. However, no reports of casualties nor monetary losses attributable to Henri have been received.

# HURRICANE HENRI

September 14-24, 1979

Date/Time (GMT)	Latitude	Longitude	Min. Pres. (lbs)	Max. Winds (kts)	Category
15/00	20.3	86.8	1003	25	Trop Dep
06	21.5	86.9	1003	25	Trop Dep
12	22.5	87.4	1003	30	Trop Dep
18	22.5	88.5	1003	30	Trop Dep
16/00	22.5	89.7	1003	30	Trop Dep
06	22.5	91.0	1002	30	Trop Dep
12	22.1	92.2	1001	35	Trop Stm
18	21.3	93.1	999	45	Trop Stm
17/00	20.2	93.6	995	55	Trop Stm
06	20.2	94.0	990	65	Hurricane
12	20.4	94.3	983	75	Hurricane
18	20.8	94.6	984	70	Hurricane
18/00	20.9	95.0	992	65	Hurricane
06	21.0	95.4	997	60	Trop Stm
12	21.2	95.7	1000	50	Trop Stm
18	21.6	95.7	1000	40	Trop Stm
19/00	21.5	95.7	1000	40	Trop Stm
06	21.3	95.6	1001	40	Trop Stm
12	21.1	95.5	1003	35	Trop Stm
18	21.1	95.3	1005	30	Trop Dep
20/00	21.1	94.9	1005	30	Trop Dep
06	21.1	94.5	1005	30	Trop Dep
12	21.2	94.2	1006	30	Trop Dep
18	21.2	93.7	1006	30	Trop Dep
21/00	21.4	93.4	1006	30	Trop Dep
06	21.7	93.1	1007	30	Trop Dep
12	22.0	92.7	1008	30	Trop Dep
18	22.3	92.3	1009	30	Trop Dep
22/00	22.6	92.1	1010	25	Trop Dep
06	23.0	91.7	1011	20	Trop Dep
12	23.3	91.5	1011	20	Trop Dep
18	23.8	91.0	1011	20	Trop Dep
23/00	24.3	90.5	1011	20	Trop Dep
06	24.8	90.1	1011	20	Trop Dep
12	25.3	89.6	1011	20	Trop Dep
18	25.4	88.8	1011	20	Trop Dep
24/00	25.6	88.0	1011	20	Trop Dep
06	26.0	87.3	1011	20	Trop Dep
12	26.4	86.7	1011	20	Extratropical

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

SEPTEMBER 1979

STATE	Temperature						Precipitation			
	Monthly extremes						Monthly extremes			
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.
Alabama	Martin Dam	96	2	Athens 2	45	23	Fayette	13.07	Georgianna	2.93
Alaska	2 Stations	75	9	Chandalar Lake	- 7	18	Little Port Walter	25.88	Tok	.07
Arizona	Gila Bend	118	7	Alpine	27	26	Walnut Creek	1.94	43 Stations	.00
Arkansas	2 Stations	96	7+	2 Stations	37	17+	Des Arc	7.68	Gravette	.30
California	Death Valley	118	9	Bodie	15	23	Gaquet Ranger Station	2.88	127 Stations	.00
Colorado	2 Stations	103	10+	2 Stations	13	15	Doherty Ranch	2.15	9 Stations	.00
Connecticut	New Haven	88	5	Coventry	25	20	Danbury	7.02	Hartford WSO AP	2.95
Delaware	Bridgeville 1 NW	89	4	2 Stations	39	20	Middletown 1 WSW	7.22	Lewes 1 SW	4.48
Florida	2 Stations	97	5	De Funiak Springs	56	24	Jacksonville Beach	24.35	Key West WSO AP	2.84
Georgia	3 Stations	46	8+	Greenville 2 NNW	44	25	Doctortown 1 WSW	17.88	Hartwell	2.02
Hawaii	Puukohola Heiau, 9501	95	25+	Mauna Kea Obs 111.2	23	1	Lanikai 68.2	17.13	8 Stations	.00
Idaho	2 Stations	103	15	Stanley	16	11	Sandpoint KSPT	1.26	2 Stations	.00
Illinois	2 Stations	94	1+	2 Stations	32	23+	Brookport Dam 52	4.72	8 Stations	.00
Indiana	2 Stations	94	3+	Lagrange Sewage Plant	31	23	Vevay	10.36	7 Stations	.00
Iowa	Red Oak	94	5	Indianola 2 SSW	28	22	Milford 4 NW	5.26	Wapello	.00
Kansas	Webster Dam	104	6	3 Station	35	16+	Stillwell	5.19	14 Stations	.00
Kentucky	Gilbertsville KY Dam	94	1	Maysville Sewage Plant	39	24	Bernheim Forest	14.72	Middlesboro	3.32
Louisiana	Logansport 4 ENE	97	1	Red Riv Valley Exp Station	47	16	Oakdale	18.22	Livingston	1.66
Maine	5 Stations	88	7+	2 Stations	23	27+	Van Buren 2	5.03	Harris Station	2.00
Maryland	Baltimore WSO CI	92	3	2 Stations	32	20	Catoctin Mountain Park	15.47	Cumberland 2	4.46
Massachusetts	Chester 2	90	1	Chester 2	19	20	Lanesboro	8.10	Edgartown	1.62
Michigan	2 Stations	89	5+	4 Stations	24	23+	Copper Harbor 3 WSW	6.21	11 Stations	.00
Minnesota	2 Stations	96	5+	Ribbing Pwr Substation	22	19	Sandy Lake Dam Libby	4.42	Glenwood 2 WNW	.00
Mississippi	2 Stations	96	8+	Batesville 2 SW	42	25+	Laurel	16.76	Lake Cormorant 1 W	2.70
Missouri	Wappapello Dam	95	7	Berryman 6 NW	30	15	Caruthersville	6.45	6 Stations	.00
Montana	3 Stations	101	9+	Wisdom	16	12	Ekalaka	2.35	8 Stations	.00
Nebraska	3 Stations	102	9	Agate 3 E	26	14	Ellsworth 9 ENE	4.84	Raymond	T
Nevada	Sunrise Near Las Vegas	112	8	Mountain City R S	19	12+	Goldfield	.74	25 Stations	.00
New Hampshire	2 Stations	87	4+	Mount Washington	15	20+	Mount Washington	6.62	Milan 7 NNW	1.97
New Jersey	4 Stations	90	4+	2 Stations	31	20	Greenwood Lake	9.59	Millville FAA AP	3.04
New Mexico	3 Stations	102	6+	Red River	25	16	Winston	3.38	6 Stations	.00
New York	New York Laurel Hill	93	4	2 Stations	22	20	Slide Mountain	12.42	Ellenburg Depot	2.47
North Carolina	2 Stations	94	6+	Banner Elk	38	11	Blowing Rock	20.73	Murphy 3 SE	2.79
North Dakota	Fullerton 1 ESE	99	5+	2 Stations	21	21	Upham 3 N	3.87	Larimore	.06
Ohio	Franklin	99	5	Dorset	30	23	Higginsport	10.05	Stryker	.67
Oklahoma	Gate 1 NNE	103	24	Zoe 1 E	37	16	Okemah	6.05	5 Stations	.00
Oregon	Medford WSO AP	103	1+	Seneca	23	12	Laurel Mountain	6.30	3 Stations	.00
Pennsylvania	Warren	93	2	Clermont 4 NW	24	20	Chadds Ford	11.96	Russell	1.74
Puerto Rico	Magueyes Island	98	1	Cerro Maravilla	53	2	Yabucoa 1 NNE	23.63	Rincon Power Plant	4.67
Rhode Island	3 Stations	85	4	Kingston	30	20	Kingston	5.24	Block Island WSO AP	2.66
South Carolina	3 Stations	96	6+	2 Stations	48	24+	Lake City 1 SE	20.62	Anderson	3.31
South Dakota	Midland	108	9	Deerfield 4 NW	15	16+	Sioux Falls WSO AP	4.03	10 Stations	.00
Tennessee	Pulaski Water Plant	95	1	2 Stations	42	24+	North Springs	12.64	Rogersville 1 NE	2.46
Texas	8 Stations	104	30+	Mount Locke	40	15	Freeport 2 NW	31.61	34 Stations	.00
Utah	2 Stations	104	9+	2 Stations	22	16+	Allens Ranch	.36	41 Stations	.00
Vermont	Vernon	87	4	2 Stations	23	24+	Powam 1 NE	8.73	Gilman	2.27
Virginia	Colonial Beach	97	7	Burkes Garden	32	10	Woolwine 4 S	21.22	Pennington Gap	3.05
Virgin Islands	Truman Field FAA AP	92	27	Alex Hamilton Field FAA	63	5	Estate Rust-Op-Twist	29.00	Truman Field FAA AP	11.43
Washington	2 Stations	99	15	Glenwood 2	29	29+	Spruce	10.59	Wenatchee	.02
West Virginia	Ripley 4 NNE	92	4	Canaan Valley	29	20	Camden On Gauley	8.34	East Rainelle 3 NNF	2.51
Wisconsin	Wisconsin Dells	90	1	2 Stations	25	23+	Gurney	6.33	2 Stations	T
Wyoming	2 Stations	101	9+	Darwin Ranch	14	14	Carpenter 3 E	.88	12 Stations	.00



## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature							Average relative humidity	Precipitation					Wind				No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)	Possible sunshine			
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date		No. of days		Average dew point	Total	Departure from normal	Greatest in 24 hours	25 mm. or more	Snow, ice pellets							Resultant speed	Resultant direction	Speed
												Max 32.2 °C or above	Min. 0 °C or lower						Total	Maximum depth on ground								
																					°C	°C	°C					
ALABAMA	2	72.0	17.4	28.4	17.7	22.2	-2.1	32.2	12.8	5*	3	0	7.8	26.0	17.4	77	11	0	0	0	1.4	5	17.4	70 17	10 17	13	13	4.2
ALASKA	19	10.0	19.7	29.7	19.7	19.7	-1.0	31.7	12.2	24*	1	0	16.7	7.4	17.2	51	7	0	0	0	1.6	4	17.2	70 17	10 17	13	13	4.2
ARIZONA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
ARKANSAS	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
CALIFORNIA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
COLORADO	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
CONNECTICUT	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
DELAWARE	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
FLORIDA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
GEORGIA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
IDAHO	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
ILLINOIS	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
INDIANA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
IOWA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
KANSAS	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
KENTUCKY	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
LOUISIANA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MAINE	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MARYLAND	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MASSACHUSETTS	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MICHIGAN	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MINNESOTA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MISSISSIPPI	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MISSOURI	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
MONTANA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NEBRASKA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NEVADA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NEW HAMPSHIRE	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NEW JERSEY	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NEW MEXICO	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NEW YORK	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NORTH CAROLINA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
NORTH DAKOTA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
OHIO	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
OKLAHOMA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
OREGON	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
PENNSYLVANIA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
RHODE ISLAND	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
SOUTH CAROLINA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
SOUTH DAKOTA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
TENNESSEE	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
TEXAS	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
UTAH	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
VERMONT	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
VIRGINIA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
WASHINGTON	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
WEST VIRGINIA	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
WISCONSIN	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2
WYOMING	19	10.0	20.6	29.6	20.6	20.6	-3.4	31.7	12.2	24*	1	0	20.0	2.4	13.0	217	10	0	0	0	2.7	5	20.6	70 17	10 17	13	13	4.2

## METRIC UNITS

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## SEPTEMBER 1979

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## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation					Wind			No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Station	Sea level	Average maximum		Average	Departure from normal	Highest	Lowest	Date	No. of days		Total	Departure from normal	Greatest in 24 hours	With thunderstorms					Snow, ice pellets	Maximum depth on ground	Resultant speed	Resultant direction	Speed	Direction																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
				mb	mb						°C	°C					°C	°C	°C								°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C

## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation				Wind				No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	%	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, ice pellets	Resultant speed				Resultant direction	Fastest mile (1.6 kilometers)	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
											Max 32.2 °C or above	Min. 0 °C or lower						mm	mm			mm	mm									mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				m	mb	mb	mb	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C		°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C



## CLIMATOLOGICAL DATA

METRIC UNITS

SEPTEMBER 1979

State and Station	Elevation (ground)	Pressure			Temperature				Precipitation				Wind			No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
		Station Q	Sea level		Average maximum	Average minimum	Average from normal	Highest Date	Lowest Date	No. of days	Average relative humidity	Total mm	Departure from normal mm	Greatest in 24 hours mm	25 mm. or more With thunderstorms			Total mm	Snow, ice pellets	Resultant speed m/s	Resultant direction	Speed m/s	Direction	Fastest mile (1.6 kilometers)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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## SEPTEMBER 1979

- 15 -

## HEATING DEGREE DAYS

(Base 65°F.)

SEPTEMBER 1979

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
FLORIDA				IDAHO				NEBRASKA				TENNESSEE			
BIRMINGHAM	1	1	0	BOISE	26	33	139	GRAND ISLAND	49	68	113	BRISTOL	23	29	37
BIRMINGHAM	0	0	0	LEWISTON	14	44	141	LINCOLN	42	52	83	CHATTANOOGA	0	0	5
HUNTSVILLE	0	0	11	FOCATELLO	66	77	212	NORFOLK	56	73	140	KNOXVILLE	0	0	10
MOBILE	0	0	0					NORTH PLATTE	52	67	156	MEMPHIS	0	0	7
MONTGOMERY	0	0	0	ILLINOIS				OMAHA (EPPELY)	65	72	77	NASHVILLE	5	5	10
				CAIRO	4	4	11	OMAHA (NORTH)	48	67	116	OAK RIDGE	7	7	20
ALABAMA				CHICAGO G HAKE	62	97	115	SCOTTSDUFF	55	65	168				
ANCHORAGE	384	706	1009	CHICAGO MILWAY	61	76	65	VALENTINE	77	115	172	TEXAS	0	0	0
ANN TFE	260	594	772	COLINE	95	122	90					ABILENE	0	0	0
BARROU	651	2101	2705	PEORIA	70	92	78	NEVADA				AMARILLO	28	30	27
BARTER ISLAND	912	2275	2566	ROCKFORD	120	155	121	ELKO	32	36	335	AUSTIN	0	0	0
BETHEL	600	1164	1313	SPRINGFIELD	50	59	56	ELY	124	241	350	BROWNSVILLE	0	0	0
BETTER	655	1067	1387					LAS VEGAS	0	0	0	CORPUS CHRISTI	0	0	0
BIG DELTA	492	756	1145	INDIANA				RENO	56	93	235	DALLAS FT WORTH	0	0	0
BOLD BAY	474	1261	1418	EVANSVILLE	28	29	34	WINNEMUCCA	75	94	247	DEL RIO	0	0	0
FAIRBANKS	548	815	1070	FORT WAYNE	94	133	102					EL PASO	24	24	0
GILKANA	546	973	1262	INDIANAPOLIS	87	103	68	NEW HAMPSHIRE				GALVESTON	0	0	0
HONER	422	1040	1325	SOUTH BEND	73	93	128	CONCORD	199	296	243	HOUSTON INTERCON	0	0	0
JINERU	435	871	1094					MT WASHINGTON OBS	715	1752	1774	LUBBOCK	9	9	8
KING SALMON	441	929	1204	IOWA								MIDLAND	3	3	0
KODIAK	357	793	1101	BURLINGTON	54	72	78	NEW JERSEY				PORT ARTHUR	0	0	0
KOTZEBU	685	1295	1535	DES MOINES	57	08	107	ATLANTIC CITY	80	105	35	SAN ANGELO	0	0	0
MC GRATH	555	1018	1212	CUBUQUE	110	143	172	ATLANTIC CITY U	27	35	23	SAN ANTONIO	0	0	0
NOME	666	1461	1639	ST. LOUIS	81	95	123	NEWARK	28	34	34	VICTORIA	0	0	0
ST. PAUL ISLAND	501	1442	1759	WATERLOO	70	85	170	TRENTON U	41	58	39	WACO	0	0	0
TALKEETHA	470	838	1109					NEW MEXICO				WICHITA FALLS	0	0	0
UNALASKA				KANSAS				ALBUQUERQUE	23	23	7	UTAH			
VALDEZ	449	1062	1321	CONCORDIA	22	38	73	CLAYTON	69	76	73	MILFORD	28	36	127
YAKUTAT	420	1012	1233	ODGE CITY	27	34	41	ROSWELL	27	27	17	SALT LAKE CITY	7	7	110
				GOODLAND	49	70	109								
ARIZONA				TOPEKA	45	49	55	NEW YORK				VERMONT			
FLAGSTAFF	186	411	376	WICHITA	10	10	32	ALBANY	163	219	166	BURLINGTON	213	301	260
PHOENIX	0	0	0					BINGHAMTON	204	314	233				
TUCSON	0	0	0	KENTUCKY				BUFFALO	134	185	183	VIRGINIA			
WINSLOW	6	6	19	COVINGTON	60	75	44	NEW YORK U	20	28	29	LYNCHBURG	27	33	33
YUMA	0	0	0	LEXINGTON	40	45	40	NEW YORK KENNEDY	45	53	42	NORFOLK	0	0	9
				LOUISVILLE	19	19	35	NEW YORK LA GUARDIA	32	39	30	RICHMOND	8	8	21
ARKANSAS								ROCHESTER	155	205	161	ROANOKE	49	61	32
FORT SMITH	8	8	0	LOUISIANA				SYRACUSE	146	204	149	WALLOPS ISLAND	3	3	15
LITTLE ROCK	0	0	5	BATON ROUGE	0	0	0								
NO. LITTLE ROCK	5	5	0	LAKE CHARLES	0	0	0	NORTH CAROLINA				WASHINGTON	165	295	390
				NEW ORLEANS	0	0	0	ASHEVILLE	44	49	50	OLYMPIA	147	441	635
CALIFORNIA				SHREVEPORT	0	0	0	CARP HATTERAS R	0	0	0	QUILAYUTE	68	113	269
BAKERSFIELD	0	0	0					CHARLOTTE	14	15	10	SEATTLE	66	153	332
BISHOP	0	6	49	MAINE				GREENSBORO	25	28	24	SEATTLE-TACOMA	91	136	264
BLUE CANYON	82	310	193	CARIBOU	327	507	533	RALEIGH	13	13	12	STAMPEDE PASS R	333	902	988
EUREKA U	92	465	770	PORTLAND	240	343	282	WILMINGTON	2	2	0	WALLA WALLA U	9	16	85
FRESNO	0	0	0									YAKIMA	59	92	204
LONG BEACH	0	0	7	MARYLAND											
LOS ANGELES	0	0	57	BALTIMORE	22	27	27	NORTH DAKOTA				WEST VIRGINIA	116	181	145
LOS ANGELES U	0	0	0					BISMARCK	191	257	305	BECKLEY	39	54	46
MT. SHASTA R	94	237	246	MASSACHUSETTS				FARGO	139	187	280	ELKINS	130	215	195
OAKLAND	0	61	213	BLUE HILL OBS R	138	194	131	WILLISTON	145	194	331	HUNTINGTON	36	43	46
RED BLUFF	0	0	0	BOSTON	80	97	84					PARKERSBURG U	54	70	46
SACRAMENTO	0	0	5	WORCESTER	180	258	178	OHIO							
SAN DIEGO	0	0	22					AKRON	118	181	126	WISCONSIN	166	216	267
SAN FRANCISCO	13	124	243	MICHIGAN				CINCINNATI ABBE OB	51	58	37	GREEN BAY	116	154	157
SAN FRANCISCO U	23	299	481	ALPENA	217	369	450	CLEVELAND	87	118	121	LA CROSSE	144	220	226
SANTA MARIA	27	131	308	DETROIT	103	137	91	COLUMBUS	83	110	84	MILWAUKEE	70	115	191
STOCKTON	0	0	0	DETROIT METRO	126	167	116	DAYTON	91	121	70				
				FLINT	120	173	197	WANSFELD	118	197	89				
COLORADO				GRAND RAPIDS	109	147	149	TOLEDO	121	170	122				
ALAMOSA	267	451	445	HOUGHTON LAKE	196	353	401	YOUNGSTOWN	141	213	149				
COLORADO SPRINGS	88	135	177	LANSING	118	178	169					WYOMING			
DENVER	58	78	120	MUSKOGON	160	228	189	OKLAHOMA				CASPER	118	159	259
GRAND JUNCTION	0	3	60	SAULT STE MARIE	305	508	512	OKLAHOMA CITY	2	2	12	CHEYENNE	105	169	278
PUEBLO	45	53	55					TULSA	0	0	10	LANDER	84	145	248
				MINNESOTA								SHERIDAN	120	146	304
CONNECTICUT				DULUTH	252	419	489	OREGON							
BRIDGEPORT	84	105	42	INTERNATIONAL FALLS	364	561	542	ASTORIA	111	294	515				
HARTFORD	152	198	118	MINNEAPOLIS	105	129	205	BURNS U	103	181	324				
				POCHESTER	123	170	241	EUGENE	50	102	211				
DELAWARE				ST CLOUD	220	307	283	MEDFORD	5	15	121				
WILMINGTON	31	42	32					PENDLETON	43	55	116				
				MISSISSIPPI				PORTLAND	19	29	223				
DIST. OF COLUMBIA				JACKSON	0	0	0	SALEM	76	121	216				
WASHINGTON DULLES	50	72	43	MERIDIAN	0	0	0	SEXTON SUMMIT R	141	398	391				
WASHINGTON NATIONAL	5	5	14												
				MISSOURI				PENNSYLVANIA							
FLORIDA				COLUMBIA REGIONAL	34	40	42	ALLENTOWN	76	111	91				
APPALACHICOLA U	0	0	0	KANSAS CITY	35	45	50	ERIE	84	137	208				
DAYTONA BEACH	0	0	0	ST JOSEPH	42	53	54	HARRISBURG	71	97	51				
FORT MYERS	0	0	0	ST LOUIS	16	16	35	PHILADELPHIA	28	39	38				
JACKSONVILLE	0	0	0	SPRINGFIELD	31	32	41	PITTSBURGH	111	160	121				
WEST WEST	0	0	0					PITTSBURGH U	57	87	64				
MIAMI	0	0	0	MONTANA				SCANTON	120	185	141				
ORLANDO	0	0	0	BILLINGS	44	53	246	WILLIAMSPORT	131	165	110				
PENSACOLA	0	0	0	GLASGOW	114	137	308								
TALLAHASSEE	0	0	0	GREAT FALLS	106	140	320	RHODE ISLAND							
TAMPA	0	0	0	HAVRE	110	146	322	BLOCK ISLAND	70	99	99				
WEST PALM BEACH	0	0	0	HELENA	127	153	394	PROVIDENCE	94	130	103				
				KALISPELL	191	258	558								
GEORGIA				MILES CITY	66	81	242	SOUTH CAROLINA							
ATHENS	6	6	6	MISSOULA	121	171	411	CHARLESTON	0	0	0				
ATLANTA	5	5	8					CHARLESTON U	0	0	0				
AUGUSTA	4	4	0					COLUMBIA	6	8	0				
COLUMBUS	1	1	0					GPVNLV-SPRTNBRG	8	10	9				
MACON	3	3	0												
POME	0	0	0					SOUTH DAKOTA							
SAVANNAH	0	0	0					ABERDEEN	124	171	235				
								HURON	122	154	191				
								RAPID CITY	64	92	221				
								SIOUX FALLS	103	131	193				

# COOLING DEGREE DAYS

(Base 65°F.)

SEPTEMBER 1979

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM U	222	1671	2095	HIL	351	2345	2296	GRAND ISLAND	132	976	1025	CHARLESTON	354	2059	1960
BIRMINGHAM	198	1636	1844	HONOLULU	489	3261	3175	LINCOLN	160	1094	1133	CHARLESTON U	355	1977	2182
HUNTSVILLE	189	1400	1736	KAHULUI	485	3028	2806	NORFOLK	128	946	915	COLUMBIA	276	1621	1995
MOBILE	361	2275	2391	LIHUE	474	2972	2799	NORTH PLATTE	123	862	802	GRNVILLE-SPRTNBRG	180	1275	1530
MONTGOMERY	337	1945	2114					OMAHA (NORTH)	122	1132	1154				
ALASKA				IDAHO				OMAHA (NORTH)	142	1000	935	SOUTH DAKOTA			
ANCHORAGE	0	4	0	BOISE	101	749	708	SCOTTSDALE	121	852	666	ABERDEEN	75	502	566
ANNETTE	0	9	14	LEWISTON	140	961	657	VALENTINE	129	777	731	HURON	96	763	711
BARROW	0	0	0	POCATELLO	63	479	437					RAPID CITY	110	548	652
BARTER ISLAND	0	0	0					NEVADA				SIOUX FALLS	87	724	713
BETHEL	0	0	0	ILLINOIS				ELKO	70	690	342				
BETHTON	0	12	17	CAIRO U	221	1696	1751	ELY	14	208	207	TENNESSEE			
BIG DELTA	0	28	34	CHICAGO O HARE	99	780	652	LAS VEGAS	614	3158	2801	REISTOL	85	711	1078
COLD BAY	0	0	0	CHICAGO MIDWAY	787	904	904	RENO	38	401	329	CHATTANOOGA	224	1328	1521
FAIRBANKS	0	23	52	MOLINE	79	885	877	WINNEHCCA	26	590	407	KNOXVILLE	259	1976	1949
GULFANA	0	0	0	PEORIA	95	880	951					MEMPHIS	175	1332	1641
HOMER	0	0	0	ROCKFORD	69	663	701	NEW HAMPSHIRE				NASHVILLE	151	1033	1333
JUNEAU	0	1	0	SPRINGFIELD	138	1160	1095	CONCORD	46	513	349	OAK RIDGE			
KING SALMON	0	0	0					MT WASHINGTON OBS	0	0	0				
KODIAK	0	0	0	INDIANA								TEXAS			
KOTZEBUE	0	1	0	EVANSVILLE	134	1203	1337	NEW JERSEY	103	835	864	ABILENE	390	2248	2334
MC GRATH	0	2	14	FORT WAYNE	78	661	739	ATLANTIC CITY U	111	705	825	AMARILLO	227	1408	1584
NOME	0	0	0	INDIANAPOLIS	92	858	961	NEWARK	158	1119	1013	AUSTIN	385	2309	2678
ST. PAUL ISLAND	0	0	0	SOUTH BEND	93	780	687	TRENTON U	119	936	958	BROWNSVILLE	388	1157	1332
TALKEETNA	0	1	6									CORPUS CHRISTI	421	3051	3076
UNALASKA	0	0	0	IOWA				NEW MEXICO				DALLAS FT WORTH	366	2275	2435
VALDEZ	0	4	0	BURLINGTON	101	912	974	ALBUQUERQUE	249	1463	1309	DEL RIO	483	2840	3115
YAKUTAT	0	0	0	DES MOINES	118	969	910	CLAYTON	117	725	759	EL PASO	308	2058	2037
ARIZONA				DOUBUDE	66	592	596	ROSWELL	251	1600	1533	GALVESTON	339	2339	2664
FLAGSTAFF	4	85	140	SIOUX CITY	95	865	923					HOUSTON INTERCON	324	2334	2633
PHOENIX	764	3782	3242	WATERLOO	106	761	665	NEW YORK				LUBBOCK	264	1780	1809
TUCSON	580	2764	2601	KANSAS				ALBANY	55	619	574	MIDLAND	314	1942	2140
WINSLOW	187	1172	1189	CONCORDIA	201	1253	1275	BRINGHAMTON	22	357	369	PORT ARTHUR	352	2349	2563
YUMA	809	3941	3783	DOUGLAS CITY	206	1276	1384	BUFFALO	49	550	437	SAN ANGELO	309	2128	2548
ARKANSAS				GOODLAND	139	928	916	NEW YORK U	192	1170	1054	SAN ANTONIO	418	2621	2765
FORT SMITH	207	1557	1943	TOPEKA	144	1248	1331	NEW YORK KENNEDY	115	817	853	VICTORIA	362	2530	2835
LITTLE ROCK	240	1830	1862	WICHITA	249	1596	1629	NEW YORK LA GUARDIA	131	1027	1038	WACO	320	2079	2669
NO. LITTLE ROCK	194	1663	1876					ROCHESTER	49	579	551	WICHITA FALLS	324	2224	2482
CALIFORNIA				KENTUCKY				SYRACUSE	46	573	551				
BAKERSFIELD	513	2524	2059	COVINGTON	102	823	1063					UTAH			
RISHOP	172	1037	1022	LEXINGTON	102	947	1174	NORTH CAROLINA				MILFORD	54	588	688
BLUE CANYON	80			LOUISVILLE	154	1197	1241	ASHEVILLE	96	788	857	SALT LAKE CITY	208	1253	916
FUREKA U	15	15	0	LOUISIANA				CAPE HATTERAS R	313	1463	1461	VERMONT			
FRESNO	442	2116	1605	BATON ROUGE	338	2215	2400	CHARLOTTE	183	1333	1546	BURLINGTON	27	518	396
LONG BEACH	302	1116	855	LAKE CHARLES	336	2243	2508	GREENSBORO	157	1148	1312				
LOS ANGELES	271	753	509	NEW ORLEANS	435	2648	2474	PALETON	205	1219	1357	VIRGINIA			
LOS ANGELES U	379	1167	1001	SHREVEPORT	284	1982	2376	WILMINGTON	293	1873	1869	LYNCHBURG	121	961	1083
MT SHASTA R	27	230	286	MAINE								NORFOLK	239	1357	1403
OAKLAND	114	224	114	CARIBOU	16	284	128	NORTH DAKOTA				RICHMOND	195	1324	1326
RED BLUFF	444	2076	1822	PORTLAND	19	313	252	BISMARCK	28	365	487	ROANOKE	97	889	1018
SACRAMENTO	295	1222	1111	MARYLAND				FARGO	58	504	473	WALLOPS ISLAND	229	1149	1081
SAN DIEGO	348	1078	631	BALTIMORE	145	1108	1094	WILLISTON	33	415	422				
SAN FRANCISCO	88	164	95	MASSACHUSETTS				OHIO				WASHINGTON			
SAN FRANCISCO U	72	109	23	BLUE HILL OBS R	57	570	457	AKRON	68	554	628	OLYMPIA	8	93	101
SANTA MARIA	51	101	67	BOSTON	85	772	661	CINCINNATI ABBE OB	122	907	1166	QUILLAYUTE	3	15	8
STOCKTON	390	1689	1217	WORCESTER	38	473	387	CLEVELAND	93	694	606	SEATTLE	20	139	183
COLORADO				MICHIGAN				COLUMBUS	93	786	801	SEATTLE-TACOMA	21	171	129
ALAMOSA	0	34	88	ALPENA	41	265	208	DAYTON	87	836	923	SPOKANE	39	496	388
COLORADO SPRINGS	77	471	455	DETROIT	69	586	733	MANFIELD	60	514	808	STAMPEDE PASS R	0	33	16
DENVER	102	654	620	DETROIT METRO	57	506	646	TOLEDO	67	580	678	WALLA WALLA U	115	1021	856
GRAND JUNCTION	215	1236	1129	FLINT	57	492	432	YOUNGSTOWN	61	487	518	YAKIMA	37	569	479
PUEBLO	124	903	971	GRAND RAPIDS	69	595	569					WEST INDIES			
CONNECTICUT				HOUGHTON LAKE	31	264	250	OKLAHOMA CITY	252	1682	1808	SAN JUAN P.R.	511	4399	3721
BRIDGEPORT	85	727	729	LANSING	63	561	529	TULSA	298	2014	1871	BECKLEY	39	398	484
HARTFORD	56	805	584	MUSKEGON	36	372	463	ASTORIA	11	26	13	CHARLESTON	105	877	1036
DELAWARE				SAULT STE MARIE	15	145	139	BURNS U	27	361	289	ELKINS	33	392	389
WILMINGTON	138	974	980	MINNESOTA				EUGENE	15	182	219	HUNTINGTON	113	979	1078
DIST. OF COLUMBIA				DULUTH	15	169	176	MEDFORD	108	628	562	PARKERSBURG U	96	822	1025
WASHINGTON DULLES	112	949	931	INTERNATIONAL FALLS	8	131	176	PENDLETON	65	647	656				
WASHINGTON NATIONAL	208	1438	1386	MINNEAPOLIS	65	651	578	PORTLAND	65	455	300	WISCONSIN			
FLORIDA				ROCHESTER	57	610	467	SALEM	20	218	232	GREEN BAY	23	379	386
APPALACHICOLA U	406	2234	2406	ST CLOUD	31	324	428	SEXTON SUMMIT R	63	202	137	LA CROSSE	60	581	683
DAYTONA BEACH	462	2575	2512	MISSISSIPPI				PACIFIC AREA				MADISON	33	437	454
FORT MYERS	563	3396	3076	JACKSON	269	1875	2190	GUAM TAGUAC R	425	3853	3735	MILWAUKEE	68	527	444
JACKSONVILLE	436	2261	2340	MERIDIAN	307	1863	2119	JOHNSTON	532	3867	3782	WYOMING			
KEY WEST	566	3907	3912					KOROR R	520	4572	4472	CASPER	37	415	458
MIAMI	483	3369	3253	MISSOURI				KWAJALEIN	547	4733	4609	CHEYENNE	49	352	327
ORLANDO	408	2810	2753	COLUMBIA REGIONAL	125	1126	1239	MAJURO	512	4464	4414	LANCER	55	436	383
PENSACOLA	401	2381	2472	KANSAS CITY	147	1145	1255	PAGO PAGO	469	4290	3967	SHERIDAN	46	318	445
TALLAHASSEE	366	2059	2368	ST JOSEPH	135	1069	1298	PONAPE	512	4539	4238				
TAMPA	515	2896	2876	ST LOUIS	195	1528	1434	WAKE	550	4430	4056				
WEST PALM BEACH	496	2946	3072	SPRINGFIELD	148	1057	1341	YAP R	501	4404	4417				
GEORGIA				MONTANA				PENNSYLVANIA							
ATHENS	221	1568	1664	BILLINGS	86	710	498	ALLENTOWN	92	803	764				
ATLANTA	243	1702	1532	GLASSGOW	86	532	438	ERIE	71	460	373				
AUGUSTA	288	1757	1914	GREAT FALLS	40	391	332	HARRISBURG	92	821	1017				
COLUMBUS	314	2118	2044	HAVRE	48	508	395	PHILADELPHIA	137	1080	1091				
MADON	312	1992	2181	HELENA	21	322	256	PITTSBURGH	70	613	640				
ROME	202			KALISPELL	2	258	117	SCRANTON	75	619	601				
SAVANNAH	378	2211	2170	MILES CITY	92	802	746	WILLIAMSPORT	73	703	692				
				MISSOULA	17	390	188								
								RHODE ISLAND							
								BLOCK ISLAND	84	507	359				
								PROVIDENCE	74	628	532				



# STORM SUMMARY

SEPTEMBER 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				φ ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	DAMAGE	DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	DAMAGE					
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS								
Alabama	1	2								1		9	9			3									2		4		
Arizona	1												4														4		
Arkansas																													
California																													
Colorado	1																												
Florida	24	1			6					1		8		1	6									3	3	4		C	
Georgia		1			5							7																	
Idaho																													
Illinois														1	1	3													
Indiana																													
Iowa	1	1																											
Kansas																													
Louisiana		1							5	4			4		1		5								6		7	7	
Maine											20																7	4	
Maryland & DC		1																									2	8	6
Massachusetts												6	6																
Michigan																										11	3		
Minnesota																	4												
Mississippi																												9	8
Missouri																													
Montana																													
Nebraska																													
Nevada																													
New Hampshire																													
New Jersey	1	1		1								14																	
New Mexico																													
New York										1																		6	7
North Carolina	1	1			4					1		7	6												5		7	6	
North Dakota																													
Ohio													5															08	C
Oklahoma	1	1											5																
Oregon																													
Pacific														1															
Pennsylvania	2	1	1																									5	3
Rhode Island																													
South Carolina		1			7																							7	
South Dakota	1	1							5	6																			
Tennessee																													
Texas	4			1	6					1	1	6	6		3	9									5	1	8	7	
Utah																													
Vermont																													
Virginia		1	1	1	6																								
Virgin Islands																													
Washington																													
West Virginia																													
Wyoming	2	1																											

## Average monthly values

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ALBANY, NY 1009 HA											ALBUQUERQUE, NM 881 HA											AMARILLO, TX 894 HA											ANCHORAGE, AK 1001 HA											ANCONA, ND 1009 HA										
Standard pressure surface ft		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind														
5FC	30	86	11.2	10.0	29	4	16.19	15.8	5.7	06	1.5	30	1.095	14.7	4.6	20	1.9	10	45	9.4	7.5	15	30	17	11.8	10.2	11	1.7																										
1000	26	172	11.5	10.2	24	5																																																
950	30	590	13.3	9.3	24	2.1																																																
900	30	1,044	11.4	8.8	27	3.9																																																
850	30	1,570	9.5	-	28	5.8																																																
800	30	2,072	8.1	-3.3	29	2.092	14.7	4.4	18	2.2	30	2,574	15.8	4.0	22	2.7	10	49	10.3	5.1	15	1.0	23	138	12.0	10.2	11	2.1																										
750	30	2,554	6.7	-7.5	26	8.2	29	2,589	11.8	1.6	22	1.7	30	2,588	12.1	1.5	26	2.7	10	395	-3.1	2.7	16	46.0	10.8	9.8	10	8.7																										
700	30	3,118	4.2	-11.5	27	9.7	29	3,167	9.7	-1.3	25	1.3	30	3,162	8.2	-2.5	10	2.1	29.38	-6.1	-11.1	15	6.1	30	3,016	8.1	-6.9	19	7.5																									
650	30	3,718	2.9	-14.4	26	12.0	29	3,777	5.2	-4.4	27	1.9	30	3,770	4.1	-7.3	35	2.1	7,615	-9.6	-16.1	16	6.0	1,650	-6.2	-12.2	20	4.8																										
600	30	4,357	-2.6	-18.4	26	13.6	29	4,425	2	-8.4	36	1.3	30	4,416	-3.3	-11.9	42	3.1	8,129	-11.1	-21.1	16	5.7	3,423	-9.8	-18.4	20	10.3																										
550	30	5,042	-6.8	-22.7	26	14.8	29	5,117	-4.8	-14.0	31	1.5	30	5,106	-4.7	-17.6	31	3.4	4,787	-17.3	-25.5	16	5.6	3,889	-14.1	-21.9	20	10.3																										
500	30	5,779	-10.4	-26.7	26	17.0	29	5,868	-5.5	-19.6	34	2.7	30	5,849	-9.4	-24.7	35	3.0	5,495	-22.1	-30.1	17	5.9	1,900	-18.8	-28.1	21	10.6																										
450	29	6,578	-17.1	-32.5	27	19.9	28	6,668	-14.4	-28.2	29	1.4	30	6,655	-15.0	-29.4	33	3.6	6,262	-27.3	-35.1	17	6.2	10	6,38	-24.6	-33.8	22	10.7																									
400	29	7,581	-23.3	-38.3	26	21.6	28	7,551	-20.4	-34.3	30	3.7	30	7,535	-21.3	-35.2	32	4.8	7,099	-33.8	-41.1	17	5.7	10	7,232	-30.3	-39.8	22	11.5																									
350	28	8,428	-29.9	-42.9	26	23.9	28	8,528	-27.8	-41.3	29	5.9	30	8,509	-28.6	-42.3	31	6.1	8,026	-40.1	-48.2	17	5.9	29	8,183	-37.8	-46.5	22	11.4																									
300	28	9,506	-37.8	-48.0	26	26.5	28	9,615	-36.0	-48.5	30	10.0	30	9,592	-36.7	-48.9	31	6.1	9,058	-47.7	-57.7	18	5.5	29	9,208	-44.8	-52.6	22	11.4																									
250	28	10,740	-46.2	-56.2	26	31.7	28	10,858	-44.7	-56.7	30	13.8	30	10,832	-45.1	-57.1	30	12.4	10	10,746	-52.6	21	4.9	28	10,399	-51.6	21	12.3																										
200	28	12,197	-54.8	-64.8	26	37.2	28	12,324	-53.8	-64.8	29	17.2	30	12,296	-53.9	-65.1	30	15.2	11	11,895	-59.2	21	4.7	28	11,845	-51.8	24	10.7																										
150	28	13,048	-57.4	-67.4	27	32.5	27	13,174	-57.5	-67.5	29	16.5	30	13,149	-57.1	-67.1	30	15.0	10	12,569	-60.7	21	4.9	28	12,710	-51.9	24	10.9																										
100	28	14,015	-60.3	-70.3	27	27.5	27	14,137	-62.4	-72.4	29	14.7	30	14,114	-61.6	-71.6	29	14.3	10	13,578	-60.7	23	5.5	28	13,709	-52.3	21	10.2																										
75	27	15,147	-62.5	-72.5	27	23.5	27	15,248	-67.2	-77.2	29	11.5	30	15,232	-65.8	-75.8	29	10.6	10	14,768	-50.4	23	4.7	28	14,887	-53.1	24	8.7																										
50	27	16,519	-63.1	-73.1	27	16.2	27	16,585	-69.5	-79.5	30	6.5	29	16,577	-68.2	-78.2	29	5.4	10	16,223	-50.7	23	4.8	28	16,324	-53.1	24	7.9																										
25	26	17,901	-61.0	-71.0	28	10.2	26	17,923	-67.0	-77.0	32	2.5	29	17,923	-65.7	-75.7	31	1.7	10	17,675	-51.1	23	4.6	28	17,762	-53.0	24	7.2																										
0	26	19,135	-59.4	-69.4	28	7.7	26	19,135	-64.5	-74.5	34	1.8	28	18,782	-64.5	-74.5	35	0.5	1.2	18,544	-51.1	21	4.4	26	18,623	-51.2	24	6.6																										
50	24	19,701	-58.0	-68.0	28	5.0	26	19,684	-61.6	-71.6	37	2.6	27	19,692	-61.2	-71.2	38	2.2	10	19,547	-51.3	23	4.8	28	19,618	-51.1	24	6.1																										
25	20	20,856	-55.9	-65.9	28	2.6	26	20,822	-58.8	-68.8	40	3.2	27	20,833	-58.3	-68.3	41	0.9	2.7	20,731	-51.5	24	4.3	26	20,793	-53.1	24	5.5																										
0	21	22,284	-53.8	-63.8	25	2.1	26	22,232	-56.3	-66.3	46	2.4	26	22,246	-56.0	-66.0	48	2.9	29	22,180	-51.6	24	4.9	28	22,229	-53.8	24	5.8																										
50	20	24,154	-51.0	-61.0	26	1.6	25	24,073	-53.0	-63.0	48	4.3	25	24,095	-52.7	-62.7	50	4.4	28	24,051	-51.1	25	4.8	28	24,091	-52.9	28	4.8																										
25	18	25,346	-49.3	-59.3	02	4	25	25,255	-50.9	-60.9	49	4.5	25	25,281	-50.7	-60.7	50	5.2	27	25,242	-51.0	26	4.8	28	25,269	-52.6	29	5.5																										
15	17	26,870	-47.1	-57.1	04	2	26	26,720	-48.9	-58.9	50	4.6	25	26,746	-48.2	-58.2	51	6.0	28	26,698	-49.2	27	4.4	26	26,713	-50.2	29	5.0																										
10	16	28,755	-44.9	-54.9	08	1.3	20	28,619	-47.0	-57.0	51	7.1	22	28,645	-45.7	-55.7	52	6.7	30	28,565	-49.2	28	6.2	21	28,591	-50.4	31	7.0																										
5	13	31,337	-42.7	-52.7	08	7.7	18	31,370	-42.1	-52.1	52	7.7	18	31,370	-42.1	-52.1	53	6.9	17	31,270	-46.1	28	7.0	15	31,235	-47.5	31	7.5																										
0	7	33,780	-40.0	-50.0	08	8	33,819	-38.1	-48.1	53	8	33,819	-38.1	-48.1	54	6	33,796	-40.1	28																																			

ATHENS, GA										BARRACK, AK										BARTER ISLAND, AK										BETHEL, AK										BISHOP, MI																																																																																																																																																																																																																																																																																																																																																																																																																																	
987 ME										1013 ME										1011 ME										1000 ME										956 ME																																																																																																																																																																																																																																																																																																																																																																																																																																	
5FC	30	246	19.0	17.3	06	2.1	28	8	1.8	-1.0	09	3.5	30	15	1.0	-3.3	09	2.7	30	39	6.8	3.0	06	1.7	30	503	9.1	5.7	06	1.1	30	100	1.8	1.1	06	2.7	2.2	06	1.1	30	574	10.0	6.1	12	6.1	30	1,013	15.0	4.7	12	3.0	30	1,496	13.6	1.8	28	5.3	30	2,004	11.1	-2.2	29	7.3	30	2,363	-3.4	-11.0	16	1.7	30	2,540	7.8	-5.4	28	6.1	30	2,706	-6.0	-16.0	17	1.6	30	3,105	-8.1	-21.7	28	6.1	30	3,482	-9.8	-20.2	17	1.7	30	4,095	-13.6	-26.2	16	1.9	30	4,521	-8.2	-20.2	29	14.4	30	5,459	-22.8	-33.8	19	2.1	30	5,756	-13.2	-26.7	28	14.9	30	6,225	-27.7	-39.8	20	2.6	30	6,541	-18.5	-34.3	28	15.6	30	7,547	-18.6	-29.3	24	10.8	30	8,515	-36.6	-24.1	28	6.3	30	9,032	-33.1	-44.3	24	15.2	30	10,889	-42.6	-52.8	24	17.7	30	12,361	-53.2	-65.2	25	20.0	30	13,520	-50.6	-65.1	25	19.8	30	14,166	-64.1	-75.1	26	15.9	30	15,270	-68.6	-80.6	26	10.5	30	16,599	-69.2	-85.2	26	5.2	30	17,917	-66.4	-91.2	26	1.3	30	18,752	-63.1	-96.1	26	2.5	30	19,706	-60.9	-101.1	26	4.9	30	20,844	-57.9	-106.1	26	3.8	30	22,243	-56.9	-111.1	26	3.1	30	24,114	-51.8	-116.1	26	4.9	30	25,305	-49.4	-121.1	26	6.1	30	26,772	-47.8	-126.1	26	6.4	30	28,682	-45.9	-131.1	26	7.8	30	31,374	-42.1	-136.1	26	8.1	30	34,066	-38.1	-141.1	26	8.4	30	36,758	-34.1	-146.1	26	8.7	30	39,450	-30.1	-151.1	26	8.9	30	42,142	-26.1	-156.1	26	9.1	30	44,834	-22.1	-161.1	26	9.3	30	47,526	-18.1	-166.1	26	9.5	30	50,218	-14.1	-171.1	26	9.7	30	52,910	-10.1	-176.1	26	9.9	30	55,602	-6.1	-181.1	26	10.1	30	58,294	-2.1	-186.1	26	10.3	30	60,986	1.9	-191.1	26	10.5	30	63,678	5.9	-196.1	26	10.7	30	66,370	9.9	-201.1	26	10.9	30	69,062	13.9	-206.1	26	11.1	30	71,754	17.9	-211.1	26	11.3	30	74,446	21.9	-216.1	26	11.5	30	77,138	25.9	-221.1	26	11.7	30	79,830	29.9	-226.1	26	11.9	30	82,522	33.9	-231.1	26	12.1	30	85,214	37.9	-236.1	26	12.3	30	87,906	41.9	-241.1	26	12.5	30	90,598	45.9	-246.1	26	12.7	30	93,290	49.9	-251.1	26	12.9	30	95,982	53.9	-256.1	26	13.1	30	98,674	57.9	-261.1	26	13.3	30	101,366	61.9	-266.1	26	13.5	30	104,058	65.9	-271.1	26	13.7	30	106,750	69.9	-276.1	26	13.9	30	109,442	73.9	-281.1	26	14.1	30	112,134	77.9	-286.1	26	14.3	30	114,826	81.9	-291.1	26	14.5	30	117,518	85.9	-296.1	26	14.7	30	120,210	89.9	-301.1	26	14.9	30	122,902	93.9	-306.1	26	15.1	30	125,594	97.9	-311.1	26	15.3	30	128,286	101.9	-316.1</

[illegible]



## Average monthly values

SEPTEMBER 1979

DODGE CITY, KS 927 MB												EL PASO, TX 847 MB												ELY, NV 812 MB												EMPALME, MEXICO 1007 MB												FAIRBANKS, AK 991 MB											
ST	30	701	15.0	9.1	19	2.0	10	1.193	16.6	8.7	06	9	1,908	7.6	6.3	19	3.4	30	12	26	22.4	06	5	30	135	5.8	1.3	02	1.5																														
1000																		30	72	28.1	22.6	08	8	5	161	5.4	1.2																																
800		1.040	19.8	8.9	20	5.2												30	529	27.4	17.7	09	1.3	30	485	8.1	.9	08	3.1																														
400		1.532	18.3	5.7	22	5.4	30	1.521	19.8	6.9	13	3.1	30	2.078	15.1	-1.4	18	30	1,007	25.3	14.2	06	8	30	930	5.9	-1.0	12	3.0																														
200		2.068	15.1	3.1	24	3.1	30	2.041	17.1	1.6	13	4.4	30	2.574	11.7	-3.8	20	30	1,508	22.4	11.4	07	1.6	30	1,396	3.0	-3.0	15	3.0																														
150		2.594	15.2	-2.6	27	1.4	30	2.589				2.2	30	3.154	10.6	-6.7	23	30	2,033	19.0	8.6	08	2.3	30	1,885	-2	-5.6	16	3.6																														
750		3.187	8.1	-6.2	32	1.1	30	3.165	9.1	-4.9	10	2.2	30	3.154	10.6	-6.7	23	30	2,558	19.0	5.3	09	2.4	30	2,398	0	-9.9	18	3.6																														
650		3.775	3.4	-9.1	36	1.4	30	3.775	4.6	-4.8	08	2.8	30	3.766	5.6	-9.4	23	30	3.778	6.2	-1.6	10	3.4	30	3,517	-9.5	-18.4	19	3.8																														
550		4.414	-1.4	-14.7	34	2.0	30	4.422	1.1	-9.2	08	4.0	30	4.415	6.6	-14.0	23	30	4.429	1.9	-7.8	11	2.2	30	4,131	-13.2	-23.4	19	4.4																														
450		5.109	-5.4	-18.1	31	3.4	30	5.114	-4.1	-15.3	07	3.7	30	5.107	-4.3	-19.9	23	30	5.128	-1.1	-15.1	10	4.1	30	4,789	-17.5	-27.3	20	4.8																														
350		5.855	-10.1	-24.6	28	4.4	30	5.861	-8.7	-21.9	05	1.5	30	5.851	-9.5	-24.4	24	30	5.882	-5.2	-19.9	32	1.1	30	5,494	-22.3	-31.3	20	5.3																														
250		6.653	-15.6	-30.1	25	5.4	30	6.659	-19.1	-29.1	32	2.2	30	6.651	-19.6	-31.9	25	30	6.702	-18.4	-28.3	26	2.4	30	6,235	-35.1	-37.0	20	5.8																														
150		7.451	-22.0	-36.4	21	7.0	30	7.456	-19.2	-34.4	31	4.1	30	7.537	-21.6	-37.8	25	30	8.000	-15.6	-31.8	29	3.8	30	7,098	-34.0	-42.2	21	5.9																														
50		8.249	-29.5	-42.8	31	7.6	30	8.259	-26.2	-41.2	30	7.1	30	8.509	-29.0	-43.3	26	30	8.597	-22.5	-38.5	30	6.3	30	8,022	-41.0	-48.9	21	5.5																														
300		9.579	-38.0	-49.4	31	8.6	30	9.583	-34.2	-47.9	30	10.5	30	9.590	-37.3	-50.3	26	30	9.707	-30.9	-46.4	30	6.9	30	9,050	-48.8		21	5.5																														
200		10.909	-46.9	-56.9	25	10.7	30	10.916	-46.2	-54.2	30	14.7	30	10.826	-45.8			30	10.975	-40.5	-53.2	29	6.8	30	10,429	-55.1		22	5.3																														
175		11.316	-57.1		29	11.8	30	11.361	-52.7		30	17.0	30	12.287	-48.2			30	12.7	-52.1			10.5	30	11,665	-51.5		24	6.2																														
150		11.723	-64.0		29	12.1	30	11.761	-57.8		30	17.3	30	13.116	-57.8			30	13.111	-58.2			10.2	30	12,355	-57.2		24	6.3																														
125		12.134	-71.3		29	12.7	30	12.174	-63.3		30	19.5	30	14.101	-61.4			30	14.266	-61.7			9.9	30	13,541	-50.5		24	5.9																														
100		12.541	-78.9		29	10.5	30	12.580	-68.6		29	10.8	29	15.221	-65.1			27	14.9	30	15.362	-71.1		30	5.4	14,730	-50.9		23	5.7																													
75		12.948	-86.5		29	6.8	30	13.605	-71.1		30	5.1	29	16.577	-66.0			28	7.2	30	16.667	-73.9		31	10.0	16,182	-51.8		23	5.2																													
50		13.355	-94.1		29	3.0	30	13.931	-88.8		01	2.4	29	17.933	-64.7			29	2.6	28	17.982	-68.7		07	4.9	17,633	-51.4		24	4.5																													
25		13.760	-101.7		29	6.5	30	14.337	-95.8		01	5.4	29	18.797	-65.2			29	2.6	28	18.847	-69.9		08	7.1	18,090	-49.9		24	4.5																													
70		14.165	-109.3		01	1.5	28	19.692	-62.1		09	5.4	29	19.173	-60.2			01	2.0	28	19.746	-61.6		09	8.6	30	19,501	-51.8		24	4.3																												
50		14.570	-116.9		08	2.2	27	20.818	-59.1		09	5.4	29	20.855	-58.4			05	1.7	28	20.879	-58.3		08	9.1	30	20,682	-52.3		25	4.4																												
25		14.975	-124.5		03	4.6	25	22.224	-56.8		08	5.7	27	22.272	-56.4			06	2.2	28	22.295	-55.3		09	10.2	30	22,125	-52.4		25	4.3																												
10		15.380	-132.1		03	3.3	23	23.057	-54.0		09	4.3	27	24.114	-52.8			06	1.3	27	24.139	-52.4		09	12.7	30	23,985	-52.2		26	4.0																												
20		15.785	-139.7		07	6.3	25	24.262	-52.7		09	4.3	27	24.114	-52.8			06	1.3	27	24.139	-52.4		09	12.8	30	24,167	-52.0		26	4.0																												
15		16.190	-147.3		01	1.2	22	26.868	-50.0		09	8.4	26	26.755	-48.5			34	2.3	26	26.868	-48.1		09	13.8	26	26,849	-49.8		25	4.7																												
10		16.595	-154.9		07	2.4	20	28.376	-48.1		08	10.2	22	28.667	-45.5			04	4	19	28.695	-45.1		09	14.3	26	26,489	-49.8		28	4.7																												
5		17.000	-162.5		07	5.6	14	31.287	-43.7		06	12.6	5	31.142	-42.0									16	31,210	-45.5		27	5.7																														



# RAWINSONDE DATA

Average monthly values

11-1968-1972

FLINT, MI 990 MB										GLASSBORO, NJ 930 MB										GRAN JUNCTION, CO 854 MB										GREAT FALLS, MT 890 MB										GRAN JUNCTION, CO 854 MB									
Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb										Standard pressure surface mb									
No. of observations										No. of observations										No. of observations										No. of observations										No. of observations									
Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters										Dynamic height meters									
Temperature °C										Temperature °C										Temperature °C										Temperature °C										Temperature °C									
Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C										Dew Point °C									
Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind										Resultant Wind									
Direction										Direction										Direction										Direction										Direction									
Speed m.p.s.										Speed m.p.s.										Speed m.p.s.										Speed m.p.s.										Speed m.p.s.									
SFC	30	236	11.8	10.1	20	1.1	30	696	10.7	5.1	07	1.3	30	10872	16.0	-1.8	13	4.1	30	1118	11.1	14.1	21	1.7	30	1117	11.1	9.7	27	1.9	30	1117	11.1	9.7	27	1.9	30	1117	11.1	9.7	27	1.9	30	1117	11.1	9.7	27	1.9	
1000	29	583	14.5	8.7	25	3.9	29	10014	15.9	3.7	31	2.4	29	1516	17.2	-1.5	11	4.2	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	
950	29	1039	12.7	5.3	28	4.4	30	10014	15.9	3.7	31	2.4	29	1516	17.2	-1.5	11	4.2	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	30	1453	18.2	-5.8	15	4.1	
900	29	1517	10.6	1.0	29	5.8	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	
850	29	2021	8.9	-8.9	28	5.8	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	
800	29	2553	7.0	-9.5	28	6.9	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	30	2006	11.6	-1.1	29	8.6	
750	29	3118	4.5	-12.4	27	7.8	30	3107	3.9	-6.8	29	7.2	30	3107	3.9	-6.8	29	7.2	30	3107	3.9	-6.8	29	7.2	30	3107	3.9	-6.8	29	7.2	30	3107	3.9	-6.8	29	7.2	30	3107	3.9	-6.8	29	7.2	30	3107	3.9	-6.8	29	7.2	
700	29	3717	1.0	-15.7	28	10.5	30	3705	4.6	-11.7	28	11.2	30	3705	4.6	-11.7	28	11.2	30	3705	4.6	-11.7	28	11.2	30	3705	4.6	-11.7	28	11.2	30	3705	4.6	-11.7	28	11.2	30	3705	4.6	-11.7	28	11.2	30	3705	4.6	-11.7	28	11.2	
650	29	4356	-2.8	-18.9	28	9.5	30	4344	-3.3	-15.8	28	12.5	30	4344	-3.3	-15.8	28	12.5	30	4344	-3.3	-15.8	28	12.5	30	4344	-3.3	-15.8	28	12.5	30	4344	-3.3	-15.8	28	12.5	30	4344	-3.3	-15.8	28	12.5	30	4344	-3.3	-15.8	28	12.5	
600	29	5040	-7.1	-23.4	28	12.1	30	5026	-8.0	-19.8	28	13.7	30	5014	-5.2	-17.1	26	14.2	30	5037	-8.1	-21.7	27	12.5	30	5037	-8.1	-21.7	27	12.5	30	5037	-8.1	-21.7	27	12.5	30	5037	-8.1	-21.7	27	12.5	30	5037	-8.1	-21.7	27	12.5	
550	29	5777	-11.9	-28.5	28	12.6	30	5759	-13.3	-25.8	28	14.6	30	5855	-10.4	-27.1	26	14.2	30	5770	-11.1	-24.1	27	13.7	30	5770	-11.1	-24.1	27	13.7	30	5770	-11.1	-24.1	27	13.7	30	5770	-11.1	-24.1	27	13.7	30	5770	-11.1	-24.1	27	13.7	
500	29	6578	-17.6	-32.6	28	13.8	30	6553	-18.8	-32.0	28	15.6	30	6670	-15.2	-30.9	27	15.7	30	6564	-18.1	-31.1	27	13.9	30	6564	-18.1	-31.1	27	13.9	30	6564	-18.1	-31.1	27	13.9	30	6564	-18.1	-31.1	27	13.9	30	6564	-18.1	-31.1	27	13.9	
450	29	7485	-24.0	-38.3	27	15.5	30	7415	-25.8	-37.2	28	17.3	30	7514	-21.8	-35.7	28	16.9	30	7432	-25.3	-38.1	27	15.0	30	7432	-25.3	-38.1	27	15.0	30	7432	-25.3	-38.1	27	15.0	30	7432	-25.3	-38.1	27	15.0	30	7432	-25.3	-38.1	27	15.0	
400	29	8409	-31.1	-44.1	27	17.1	30	8377	-32.8	-44.1	28	19.2	30	8408	-29.1	-44.1	28	17.9	30	8391	-32.4	-44.9	27	17.1	30	8391	-32.4	-44.9	27	17.1	30	8391	-32.4	-44.9	27	17.1	30	8391	-32.4	-44.9	27	17.1	30	8391	-32.4	-44.9	27	17.1	
350	29	9481	-39.1	-48.0	26	19.7	30	9440	-41.3	-51.2	29	21.3	30	9588	-37.7	-50.1	29	19.7	30	9483	-40.7	-52.1	27	19.3	30	9483	-40.7	-52.1	27	19.3	30	9483	-40.7	-52.1	27	19.3	30	9483	-40.7	-52.1	27	19.3	30	9483	-40.7	-52.1	27	19.3	
300	29	10708	-47.0	-56.0	26	22.8	30	10655	-49.3	-58.3	28	23.2	30	10824	-45.8	-57.8	29	21.9	30	10670	-49.1	-57.1	27	21.9	30	10670	-49.1	-57.1	27	21.9	30	10670	-49.1	-57.1	27	21.9	30	10670	-49.1	-57.1	27	21.9	30	10670	-49.1	-57.1	27	21.9	
250	29	12145	-53.0	-63.0	26	25.8	30	12101	-53.8	-65.0	28	23.1	30	12282	-53.6	-65.6	28	23.1	30	12145	-53.0	-63.0	27	20.1	30	12145	-53.0	-63.0	27	20.1	30	12145	-53.0	-63.0	27	20.1	30	12145	-53.0	-63.0	27	20.1	30	12145	-53.0	-63.0	27	20.1	
200	29	13020	-55.8	-68.0	26	28.8	30	12977	-55.2	-68.0	28	21.9	30	13151	-57.1	-68.0	28	21.9	30	13020	-55.8	-68.0	27	19.3	30	13020	-55.8	-68.0	27	19.3	30	13020	-55.8	-68.0	27	19.3	30	13020	-55.8	-68.0	27	19.3	30	13020	-55.8	-68.0	27	19.3	
150	29	13995	-58.8	-71.0	26	31.8	30	13937	-57.0	-71.0	28	20.1	30	14101	-60.7	-71.0	28	20.1	30	13995	-58.8	-71.0	27	17.9	30	13995	-58.8	-71.0	27	17.9	30	13995	-58.8	-71.0	27	17.9	30	13995	-58.8	-71.0	27	17.9	30	13995	-58.8	-71.0	27	17.9	
100	29	15134	-61.0	-74.0	26	34.8	30	15087	-59.5	-74.0	28	17.8	30	15225	-64.3	-74.0	28	17.8	30	15134	-61.0	-74.0	27	15.0	30	15134	-61.0	-74.0	27	15.0																			



# RAWINSONDE DATA

Average monthly values

SEPTEMBER 1979

KEY WEST, FL 1011 MB												KING SALMON, AK 1004 MB												KOROR, CAROLINE IS. 1007 MB												KOTZERUE, AK 1008 MB												LAKE CHARLES, LA 1013 MB												
Standard pressure surface mb.												Standard pressure surface mb.												Standard pressure surface mb.												Standard pressure surface mb.												Standard pressure surface mb.												
No. of observations												No. of observations												No. of observations												No. of observations												No. of observations												
Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												Dynamic height meters												
Temperature °C												Temperature °C												Temperature °C												Temperature °C												Temperature °C												
Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C												Dew Point °C												
Direction tens of deg.												Direction tens of deg.												Direction tens of deg.												Direction tens of deg.												Direction tens of deg.												
Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												Speed m.p.s.												
5FC	1	3	27.2	24.4	13	3.8	19	15	7.8	3.2	11	1.5	30	30	28.3	24.8	32	.6	30	5	4.8	1.9	02	2.0	30	5	20.1	18.9	02	1.7	1.00	30	88	27.5	24.7	31	.7	25	91	4.6	-6.35	2.4	30	115	21.6	18.5	04	3.6												
95C	3	552	23.6	21.3	11	6.6	19	9.9	7.2	2.8	04	1.9	30	542	23.9	22.1	29	1.2	30	489	3.7	-2.4	11	2.4	30	561	20.7	15.9	07	5.5	750	1.074	20.9	17.4	14	6.4	4	1.02	16	-4.4	16	2.8	30	1.02	18.1	13.2	07	5.0												
970	10	1,074	20.9	17.4	14	6.4	4	1.02	16	2.8	30	1,074	20.9	17.4	14	6.4	4	1.02	16	2.8	30	1,074	20.9	17.4	14	6.4	4	1.02	16	2.8	30	1,074	20.9	17.4	14	6.4	4	1.02	16	-6.6	17	2.5	30	1,517	16.1	5.9	06	2.5												
980	17	1,517	18.1	13.7	14	5.9	19	1,377	2.2	-3.3	09	1.4	30	1,099	16.1	14.6	15	1.3	30	1,384	-1.7	-10.1	18	2.2	30	2,031	14.0	1.05	07	3.0	4	2.0	16	5.6	5.8	-3.4	-19.6	19	3.0	3,146	11.1	-6.2	05	2.3																
990	30	2,031	15.6	8.6	14	5.7	19	1,865	-3.3	-7.8	11	1.8	30	2,028	15.8	11.2	12	1.3	30	1,865	-3.7	-10.1	18	2.2	30	2,031	14.0	1.05	07	3.0	710	2.542	12.8	5.9	14	5.0	19	2,379	-2.8	-11.7	18	2.8	30	2,573	11.3	-1.6	06	2.3												
1000	30	2,542	12.8	5.9	14	5.0	19	2,379	-2.8	-11.7	18	2.8	30	2,573	11.3	1.2	10	2.0	30	2,372	-6.2	-15.0	17	2.8	30	2,573	11.3	-1.6	06	2.3	650	3.772	6.3	-7.4	14	3.9	19	3,500	-2.9	-19.9	19	3.0	30	3,481	-11.8	-22.6	20	3.3	30	3,754	4.2	-8.3	04	1.5						
1010	30	3,159	9.7	3.2	14	4.5	19	2,923	-6.1	-14.4	24	4.6	30	3,154	10.4	2.8	11	2.5	30	2,910	-8.8	-19.6	19	3.0	30	3,146	11.1	-6.2	05	2.3	600	4.425	2.6	-4.2	11	3.1	19	4,116	-12.2	-23.4	27	1.2	30	4,422	3.2	-5.3	10	3.5	30	4,401	-7.7	-11.3	32	1.6						
1020	30	4,425	2.6	-4.2	11	3.1	19	4,116	-12.2	-23.4	27	1.2	30	4,422	3.2	-5.3	10	3.5	30	4,401	-7.7	-11.3	32	1.6	30	4,401	-7.7	-11.3	32	1.6	550	5.123	-1.4	-9.3	13	3.0	19	4,776	-16.3	-24.8	24	2.3	30	5,123	-1.4	-9.3	13	3.0	30	5,095	-3.4	-10.5	24	1.3						
1030	30	5,123	-1.4	-9.3	13	3.0	19	4,776	-16.3	-24.8	24	2.3	30	5,123	-1.4	-9.3	13	3.0	19	4,776	-16.3	-24.8	24	2.3	30	5,123	-1.4	-9.3	13	3.0	500	5.839	-5.5	-14.1	12	3.0	19	5,847	-25.1	-30.0	26	2.5	30	5,879	-4.7	-15.3	09	3.6	30	5,443	-24.4	-34.4	21	5.6	30	5,843	-7.9	-19.4	26	2.7
1040	30	5,839	-5.5	-14.1	12	3.0	19	5,847	-25.1	-30.0	26	2.5	30	5,879	-4.7	-15.3	09	3.6	30	5,443	-24.4	-34.4	21	5.6	30	5,843	-7.9	-19.4	26	2.7	450	6.659	-10.1	-21.4	13	2.9	19	6,258	-21.9	-35.5	27	2.3	30	6,702	-9.4	-20.7	08	3.9	30	6,203	-29.4	-39.0	22	7.1	30	6,654	-13.0	-22.9	26	4.3
1050	30	6,659	-10.1	-21.4	13	2.9	19	6,258	-21.9	-35.5	27	2.3	30	6,702	-9.4	-20.7	08	3.9	30	6,203	-29.4	-39.0	22	7.1	30	6,654	-13.0	-22.9	26	4.3	400	7.509	-15.9	-26.6	12	2.6	19	7,101	-31.7	-39.8	30	3.1	30	7,603	-15.0	-26.5	08	3.5	30	7,033	-35.5	-42.4	22	8.6	30	7,542	-19.0	-30.8	25	5.6
1060	30	7,509	-15.9	-26.6	12	2.6	19	7,101	-31.7	-39.8	30	3.1	30	7,603	-15.0	-26.5	08	3.5	30	7,033	-35.5	-42.4	22	8.6	30	7,542	-19.0	-30.8	25	5.6	350	8.594	-22.7	-34.1	11	1.8	19	8,033	-38.9	-41.3	30	4.6	30	8,603	-21.6	-33.9	08	3.3	30	7,953	-41.9	-42.4	22	9.8	30	8,526	-25.7	-38.0	25	8.2
1070	30	8,594	-22.7	-34.1	11	1.8	19	8,033	-38.9	-41.3	30	4.6	30	8,603	-21.6	-33.9	08	3.3	30	7,953	-41.9	-42.4	22	9.8	30	8,526	-25.7	-38.0	25	8.2	300	9.753	-30.7	-43.5	10	2.3	18	9,087	-45.9		32	10.0	30	9,718	-30.0	-41.3	07	3.9	30	9,879	-48.5		22	10.1	30	9,623	-33.5	-46.0	25	10.4
1080	30	9,753	-30.7	-43.5	10	2.3	18	9,087	-45.9		32	10.0	30	9,718	-30.0	-41.3	07	3.9	30	9,879	-48.5		22	10.1	30	9,623	-33.5	-46.0	25	10.4	250	10.971	-48.5	-51.3	09	1.8	18	10,286	-50.7		32	9.7	30	10,889	-40.1	-50.7	09	4.2	30	11,067	-52.2		23	10.2	30	10,880	-48.0	-53.9	29	13.0
1090	30	10,971	-48.5	-51.3	09	1.8	18	10,286	-50.7		32	9.7	30	10,889	-40.1	-50.7	09	4.2	30	11,067	-52.2		23	10.2	30	10,880	-48.0	-53.9	29	13.0	200	12.460	-53.0		36	3.1	18	11,743	-49.8		32	9.5	30	12,470	-52.8		08	6.8	30	11,615	-50.7		24	8.8	30	12,358	-52.0		25	15.3
1100	30	12,460	-53.0		36	3.1	18	11,743	-49.8		32	9.5	30	12,470	-52.8		08	6.8	30	11,615	-50.7		24	8.8	30	12,358	-52.0		25	15.3	175	13.298	-59.9		02	2.8	18	12,617	-50.0		31	9.4	30	13,318	-59.9		07	8.7	30	12,485	-50.2		24	7.5	29	13,213	-57.4		25	14.0
1110	30	13,298	-59.9		02	2.8	18	12,617	-50.0		31	9.4	30	13,318	-59.9		07	8.7	30	12,485	-50.2		24	7.5	29	13,213	-57.4		25	14.0	150	14.244	-66.9		04	3.6	18	13,624	-50.3		30	7.0	30	14,263	-68.0		07	9.4	30	13,494	-69.6		23	7.1						



## Average monthly values

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## Average monthly values

SEPTEMBER 1979

TUSCON, AZ 923 MB										VANDENBERG AFB, CA 1003 MB										VICTORIA, TX 1009 MB										WAKE IS., PACIFIC AREA 1014 MB										WALLOPS ISLAND, VA NASA 1018 MB									
30	789	23.3	7.2	17	3.1	30	100	13.5	12.1	36	.3	30	33	20.0	18.4	01	2.1	30	5	27.2	24.6	09	3.8	30	4	20.1	17.9	05	1.1																				
1000						15	124	13.5	12.3	36	.6	30	114	21.9	19.2	03	2.8	30	131	26.5	23.4	09	5.3	30	156	19.9	16.4	06	1.8																				
955						30	540	21.7	20	01	3.9	30	561	21.4	15.2	05	4.5	30	583	23.0	20.8	09	7.5	30	598	17.9	13.4	06	1.3																				
900	3	1,006	25.6	7.7	12	30	1,011	22.9	2.7	02	3.7	30	1,028	18.8	12.2	05	3.9	30	1,054	20.1	17.1	10	7.1	30	1,059	15.6	10.3	25	1.6																				
850	3	1,500	21.5	5.9	10	3.5	1,506	17.7	-1.7	01	1.9	30	1,519	17.0	4.6	06	1.9	30	1,541	17.2	12.9	09	7.1	30	1,544	7.7	5.7	26	1.3																				
800	3	2,012	19.7	3.3	09	2.6	2,026	17.7	-3.8	11	-1	30	2,033	17.2	2.0	06	2.9	30	2,062	9.0	6.0	10	6.3	30	2,053	11.7	2.7	26	1.6																				
750	3	2,584	15.7	1.1	09	1.8	2,574	14.4	-6.4	20	-2.1	30	2,576	11.2	-0.04	5.0	30	2,607	12.3	2.2	10	6.2	30	2,592	9.5	-1.2	26	5.5																					
700	30	3,164	10.8	-1.2	09	1.5	3,152	10.1	-9.8	20	3.6	30	3,148	7.9	-3.9	04	4.7	30	3,183	9.3	-2.7	10	6.2	30	3,162	6.9	-5.0	26	6.9																				
650	30	3,777	5.8	-3.1	11	1.6	3,763	6.0	-12.6	20	4.2	30	3,757	4.6	-8.3	04	4.2	30	3,793	5.7	-6.5	10	5.6	30	3,767	3.5	-8.5	25	7.9																				
600	30	4,426	.5	-6.3	15	1.7	4,413	1.4	-16.2	19	4.7	30	4,405	.9	-11.2	04	2.9	30	4,444	1.7	-11.4	10	4.9	30	4,413	-1	-12.5	24	9.5																				
550	30	5,119	-3.7	-15.0	12	1.3	5,107	-3.0	-21.7	19	4.4	30	5,100	-3.0	-15.8	01	2.0	30	5,140	-2.3	-15.5	10	3.8	30	5,106	-3.8	-15.5	25	11.4																				
500	30	5,889	-7.1	-23.6	25	1.3	5,855	-7.7	-26.9	21	3.9	29	5,849	-7.5	-20.4	13	1.7	30	5,900	-6.8	-19.0	10	2.7	30	5,852	-8.3	-19.8	25	12.0																				
450	30	6,480	-12.1	-29.5	30	2.1	6,460	-13.1	-31.4	23	4.9	29	6,462	-12.5	-27.0	30	2.7	30	6,506	-11.8	-23.8	09	2.0	30	6,463	-13.3	-25.6	25	12.7																				
400	30	7,570	-18.2	-34.3	31	4.1	7,551	-19.6	-36.6	25	6.9	29	7,552	-18.3	-32.7	29	4.5	30	7,598	-17.7	-28.4	05	1.2	30	7,549	-19.5	-29.8	25	14.8																				
350	30	8,557	-25.1	-41.2	30	6.8	8,532	-26.8	-42.8	25	9.8	29	8,539	-25.0	-39.5	28	6.8	30	8,597	-24.5	-34.0	32	2.9	30	8,531	-26.3	-36.7	25	16.6																				
300	30	9,657	-32.7	-47.8	29	10.9	9,624	-34.6	-49.1	25	14.5	29	9,640	-32.4	-46.8	28	10.0	29	9,689	-32.8	-42.2	31	5.4	30	9,625	-34.2	-45.4	25	19.0																				
250	30	10,919	-41.1	-53.3	30	14.9	10,876	-42.9		25	19.7	29	10,901	-41.4	-52.9	28	12.8	28	10,945	-43.2		30	9.4	30	10,876	-43.6		25	21.8																				
200	30	12,401	-51.8		29	17.6	12,350	-52.1		25	22.7	29	12,384	-51.5		28	12.7	27	12,408	-55.3		30	14.6	30	12,342	-53.9		26	25.2																				
150	30	13,256	-57.6		29	16.5	13,204	-57.3		25	21.7	29	13,239	-57.2		28	12.1	27	13,247	-62.1		30	15.3	30	13,190	-58.6		27	23.1																				
100	30	14,215	-63.7		29	15.1	14,166	-62.9		25	19.2	29	14,200	-63.6		28	10.8	26	14,181	-66.6		30	17.7	30	14,063	-64.6		27	29.7																				
75	30	15,119	-69.2		29	12.2	15,105	-67.7		25	14.4	29	15,103	-69.4		28	8.0	27	15,263	-79.7		32	5.3	30	15,257	-66.8		27	14.5																				
50	30	16,640	-74.4		29	5.1	16,614	-69.4		24	6.6	29	16,620	-72.4		32	2.8	27	16,569	-73.7		05	3.6	30	16,600	-67.5		27	9.9																				
25	30	17,966	-68.2		01	2.3	17,954	-66.9		24	.8	29	17,943	-68.6		07	4.6	27	17,879	-71.3		08	8.1	29	17,951	-64.2		28	5.2																				
0	28	18,777	-65.0		07	3.8	18,766	-64.5		11	2.4	29	18,750	-65.3		08	6.8	27	18,674	-69.1		09	11.0	29	18,774	-61.9		28	3.1																				
60	28	19,723	-61.8		09	4.5	19,713	-62.1		09	3.2	29	19,696	-62.1		09	7.8	27	19,604	-65.5		09	13.5	29	19,734	-59.3		29	1.6																				
30	28	20,861	-58.7		09	5.3	20,850	-58.9		08	3.5	29	20,831	-59.1		09	8.9	27	20,723	-62.0		09	16.0	29	20,883	-56.6		25	4.6																				
0	28	22,172	-56.4		09	6.3	22,158	-56.4		08	3.7	29	22,139	-56.3		09	10.1	27	22,031	-59.6		09	17.9	29	22,191	-54.6		27	1.1																				
30	28	24,117	-53.1		09	8.3	24,101	-53.2		08	4.2	27	24,084	-55.1		08	11.6	26	23,935	-59.6		09	21.7	27	24,166	-50.7		08	1.4																				
25	28	25,295	-51.6		09	8.3	25,281	-51.3		09	4.7	25	25,267	-51.1		09	12.4	25	25,108	-52.5		09	22.5	25	25,357	-49.0		07	2.0																				
23	28	26,751	-49.3		09	8.3	26,735	-49.3		09	4.3	23	26,731	-48.6		09	12.1	22	26,563	-50.1		09	22.6	22	26,831	-46.3		08	2.7																				
20	28	28,649	-46.9		09	9.2	28,630	-46.6		10	4.8	21	28,643	-45.9		08	13.5	19	28,495	-48.0		09	23.3	19	28,755	-44.5		08	1.9																				
10	22	31,360	-42.7		05	11.8	31,336	-43.6		08	6.8	20	31,371	-41.3		09	16.0	15	31,155	-44.4		09	23.6	7	31,391	-41.8																							
0	11	33,788	-40.4		05	15	33,736	-39.9		10	7.1	6	33,778	-39.4					8	33,590	-38.4																												
						5	36,062	-36.4																																									

Average monthly values

WASHINGTON DULLES INT. AP 1008 MB												WAYCROSS, GA 1008 MB												WEST PALM BEACH, FL 1013 MB												WINNEMUCA, NV 870 MB												WINSLOW, AZ 853 MB																																																																																																																																																																																																			
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind Direction ten of deg		Speed m.p.s		No. of observations	



# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

SEPTEMBER 1979

MAUNA LOA OBSERVATORY, HI										TUCSON, AZ									
Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78°	75°	70°	60°	*	60°	70°	75°	78°		78°	75°	70°	60°	*	60°	70°	75°	78°	
Air mass										Air mass									
1.64	2.67	2.01	1.34	*	1.34	2.01	2.67	3.34		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
1-----	1.21	1.27	1.36	1.46	1.56	1.42	1.31	1.22	1.14	1-----	.68	.78	.92	1.24	1.06	.90	.73	.64	
2-----	1.18	1.25	1.33	1.43	1.58	1.41	1.31	1.22	1.16	2-----	-----	-----	.84	1.06	1.08	.91	.77	.66	
3-----	1.17	1.25	1.32	1.44	-----	-----	-----	-----	-----	3-----	.51	.64	.80	.99	-----	.92	.74	.59	.50
4-----	1.16	1.24	1.31	1.42	-----	-----	-----	-----	-----	4-----	.71	.81	.98	1.16	1.41	1.22	1.04	.91	.80
5-----	1.18	1.26	1.34	1.45	1.55	1.44	1.33	1.22	1.16	5-----	.68	.79	.90	1.07	1.31	1.12	.92	.81	.67
6-----	1.12	1.20	1.31	1.44	1.59	1.42	1.31	1.30	1.16	6-----	.63	.73	.87	1.03	1.27	1.08	.86	.69	.59
7-----	1.17	1.24	1.33	1.43	1.52	-----	-----	-----	-----	7-----	.71	.82	.97	1.14	1.40	1.15	.97	.84	.74
8-----	1.15	1.21	1.31	1.41	-----	-----	-----	-----	-----	8-----	.80	.90	1.03	1.21	1.38	1.15	.96	.84	.76
9-----	1.18	1.26	1.34	1.45	1.55	-----	-----	-----	-----	9-----	.85	.95	1.04	1.17	1.38	1.18	.98	.85	.71
10-----	1.16	1.23	1.34	1.45	1.55	-----	-----	-----	-----	10-----	.71	.80	.93	1.09	1.30	-----	-----	.70	.57
11-----	1.18	1.26	1.35	1.45	1.57	-----	-----	-----	-----	11-----	.58	.67	.82	.99	1.21	.85	.69	.57	-----
12-----	1.21	1.28	1.36	1.47	1.59	1.46	1.35	1.27	1.18	12-----	-----	-----	-----	-----	1.17	.95	.73	.60	.47
13-----	1.21	1.28	1.36	1.47	1.59	1.46	1.35	1.27	1.18	13-----	-----	.60	.71	-----	1.17	.87	-----	-----	-----
14-----	1.18	1.25	1.35	1.46	1.56	1.46	1.37	1.30	1.21	14-----	-----	-----	.71	-----	1.17	.94	.74	.61	-----
15-----	1.22	1.30	1.40	1.51	-----	-----	-----	-----	-----	15-----	.56	.66	.79	.98	1.16	-----	-----	-----	-----
16-----	1.21	1.29	1.37	1.46	-----	-----	-----	-----	-----	16-----	-----	-----	-----	1.11	1.27	1.11	.96	.83	.74
17-----	1.23	1.30	1.36	1.46	1.55	-----	-----	-----	-----	17-----	.88	.98	1.09	1.25	1.38	1.14	.96	.83	.72
18-----	1.13	1.23	1.32	1.43	1.55	-----	-----	-----	-----	18-----	.77	.87	.98	1.14	-----	1.10	.84	-----	.65
19-----	1.17	1.24	1.33	1.43	1.55	1.39	1.29	1.18	1.10	19-----	.79	.89	1.02	1.19	1.37	1.16	.97	.81	.72
20-----	1.18	1.27	1.35	1.46	-----	-----	-----	-----	-----	20-----	.78	.88	.99	1.17	1.36	1.10	-----	-----	.64
21-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	21-----	.69	.78	.90	1.09	1.24	.94	.83	.70	.58
22-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	22-----	-----	-----	-----	-----	1.13	.82	-----	-----	.41
23-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	23-----	.55	.66	.80	1.02	1.17	.89	.65	-----	-----
24-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	24-----	.65	.74	.80	1.08	-----	1.04	.86	-----	.60
25-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	25-----	.83	.93	1.04	1.22	1.37	1.16	.95	.83	.70
26-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	26-----	.75	.85	.97	-----	1.24	-----	-----	-----	-----
27-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	27-----	-----	-----	-----	-----	-----	-----	.91	-----	-----
28-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	28-----	.56	.66	.80	-----	1.20	-----	-----	-----	-----
29-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	29-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Average	1.18	1.26	1.34	1.45	1.56	1.44	1.33	1.25	1.16	Average	.70	.79	.90	1.11	1.27	1.04	.88	.75	.64

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . . .	94	107	115	124	132	138	147	155	166	177	185	193	201	207	212	217	221	225	229	232	235	238	241	244	247	250	253	256	259	262	265	268



OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. = 9 x °C + 32

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

STORM SUMMARY:

Ø Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

\* No Storm Data Report received for this State.

+ Report Incomplete.

\* Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

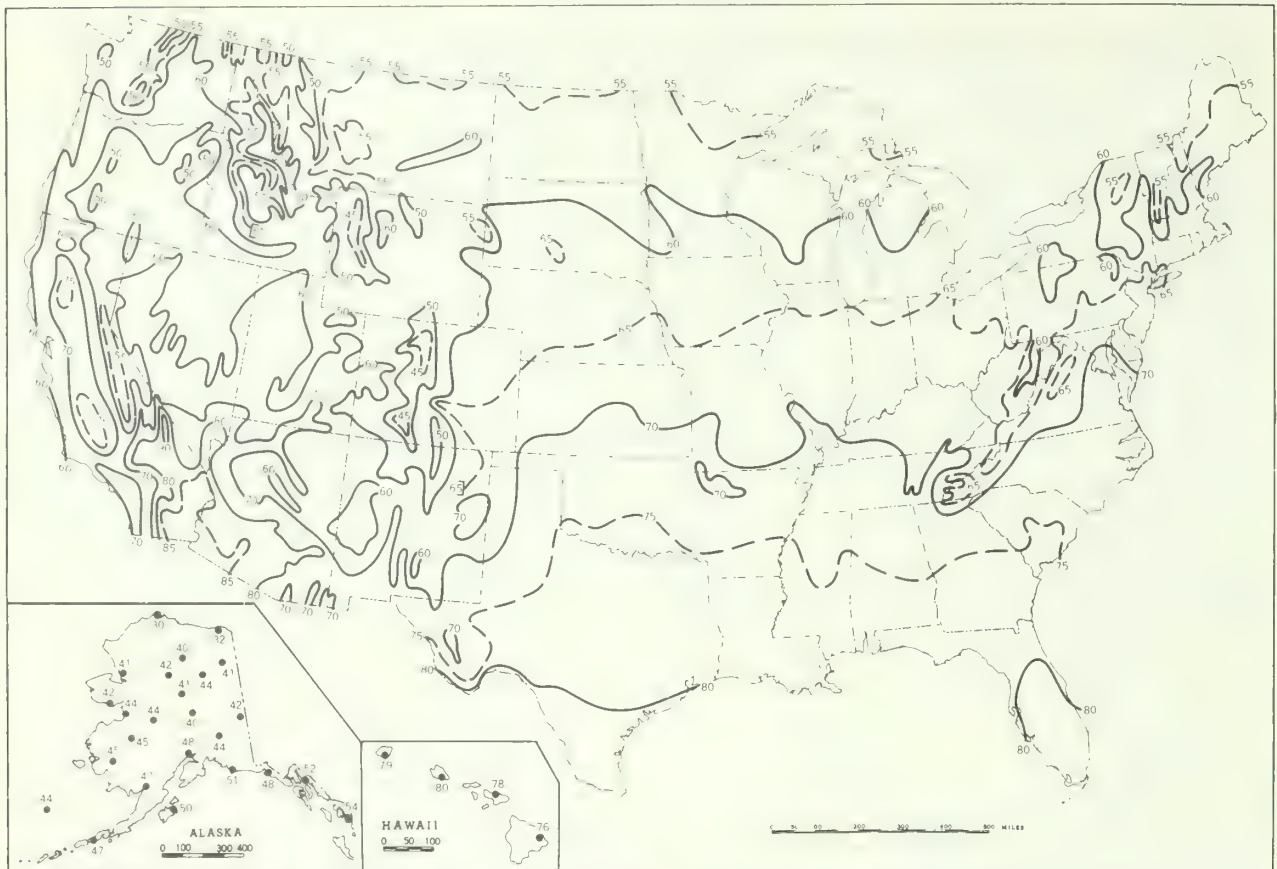
SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

CI	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	M	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Smoke
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable	N	Noon
BN	Blowing Sand	CF	Ground Fog	S	Smoke	N	Noon
D	Dust	H	Haze	SI	Intense Smoke	S	Slight Haze-indeterminable
DI	Intense Dust	HI	Intense Haze	SM	Moderate Smoke		

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), September.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), September 1979

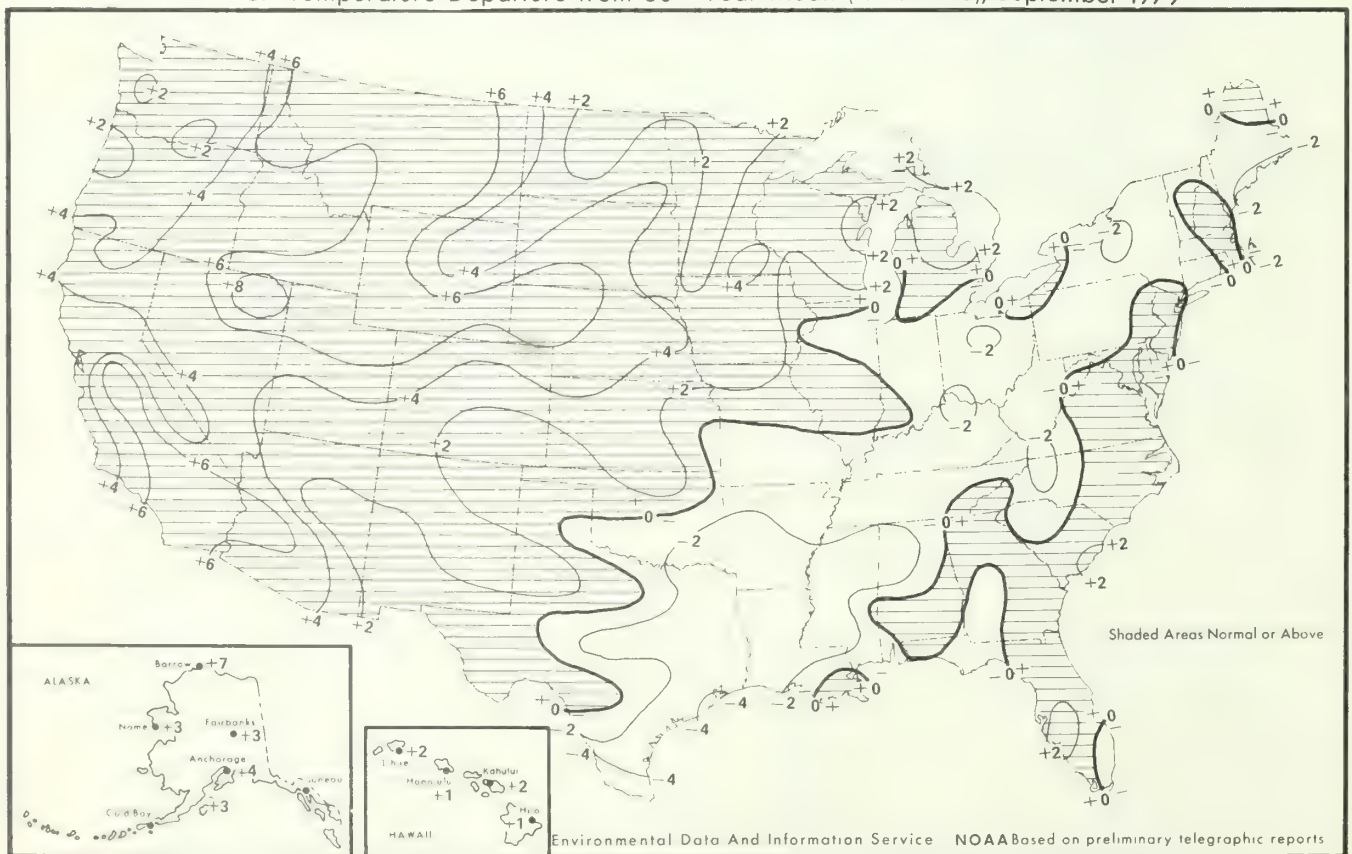
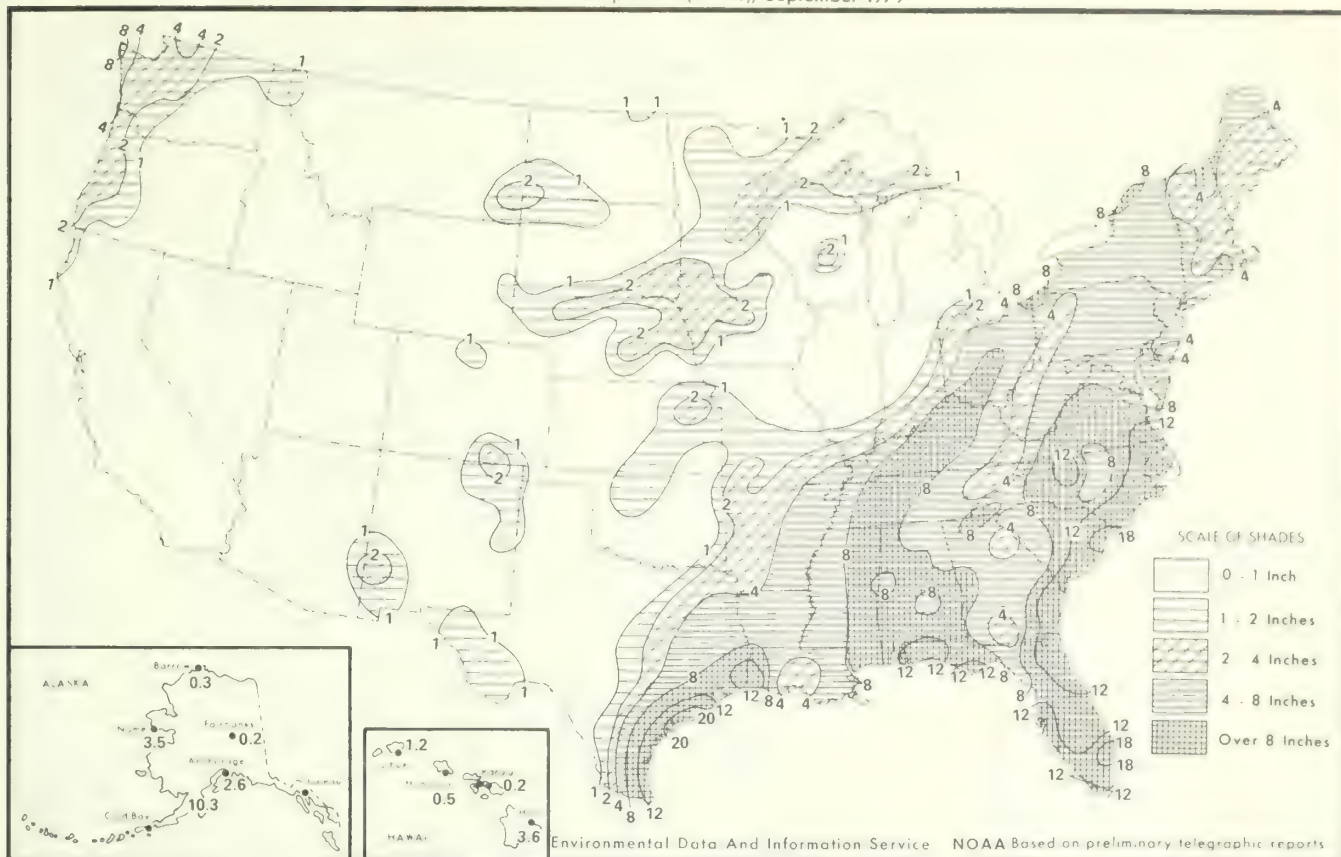




Chart II. A. Total Precipitation (Inches), September 1979



B. Percentage of Normal Precipitation, September 1979

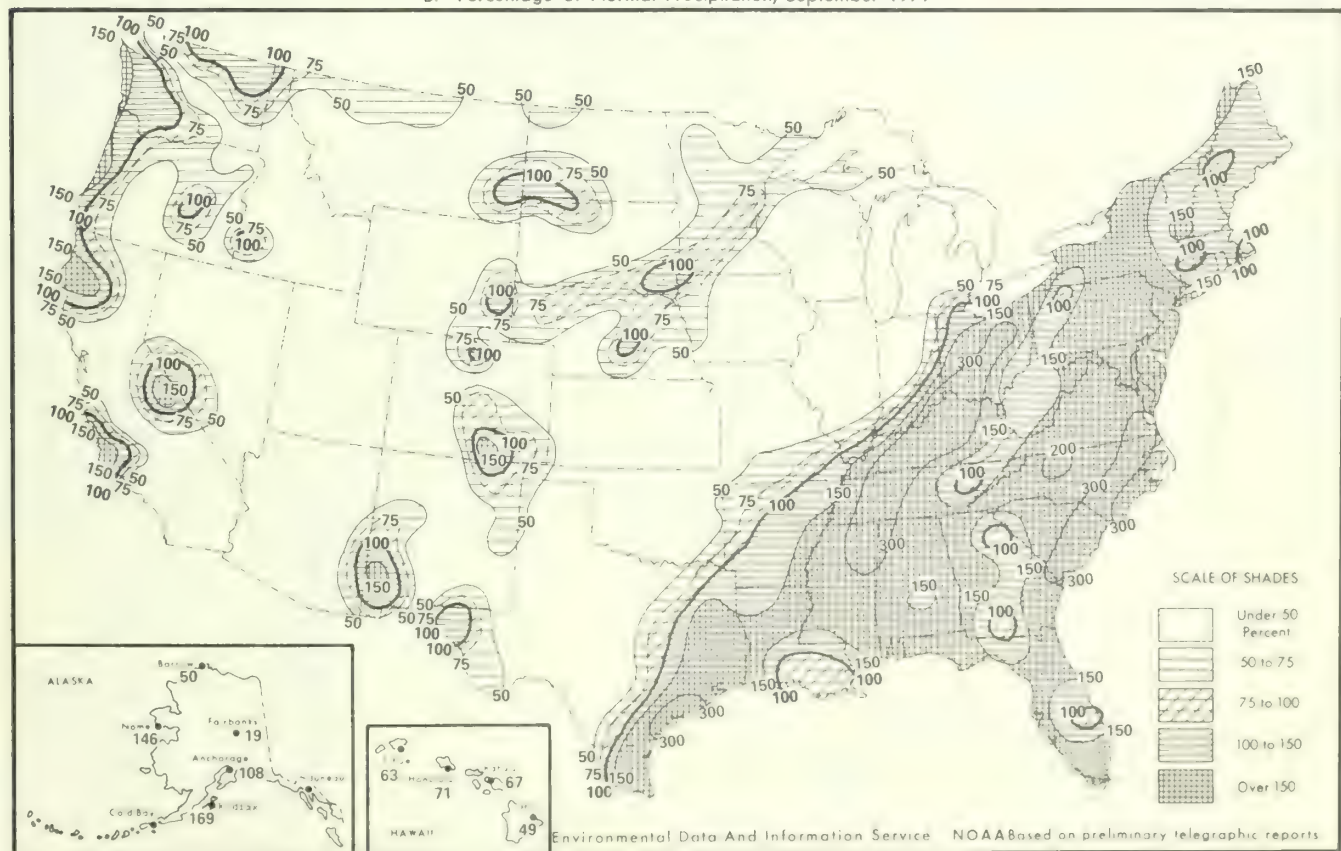
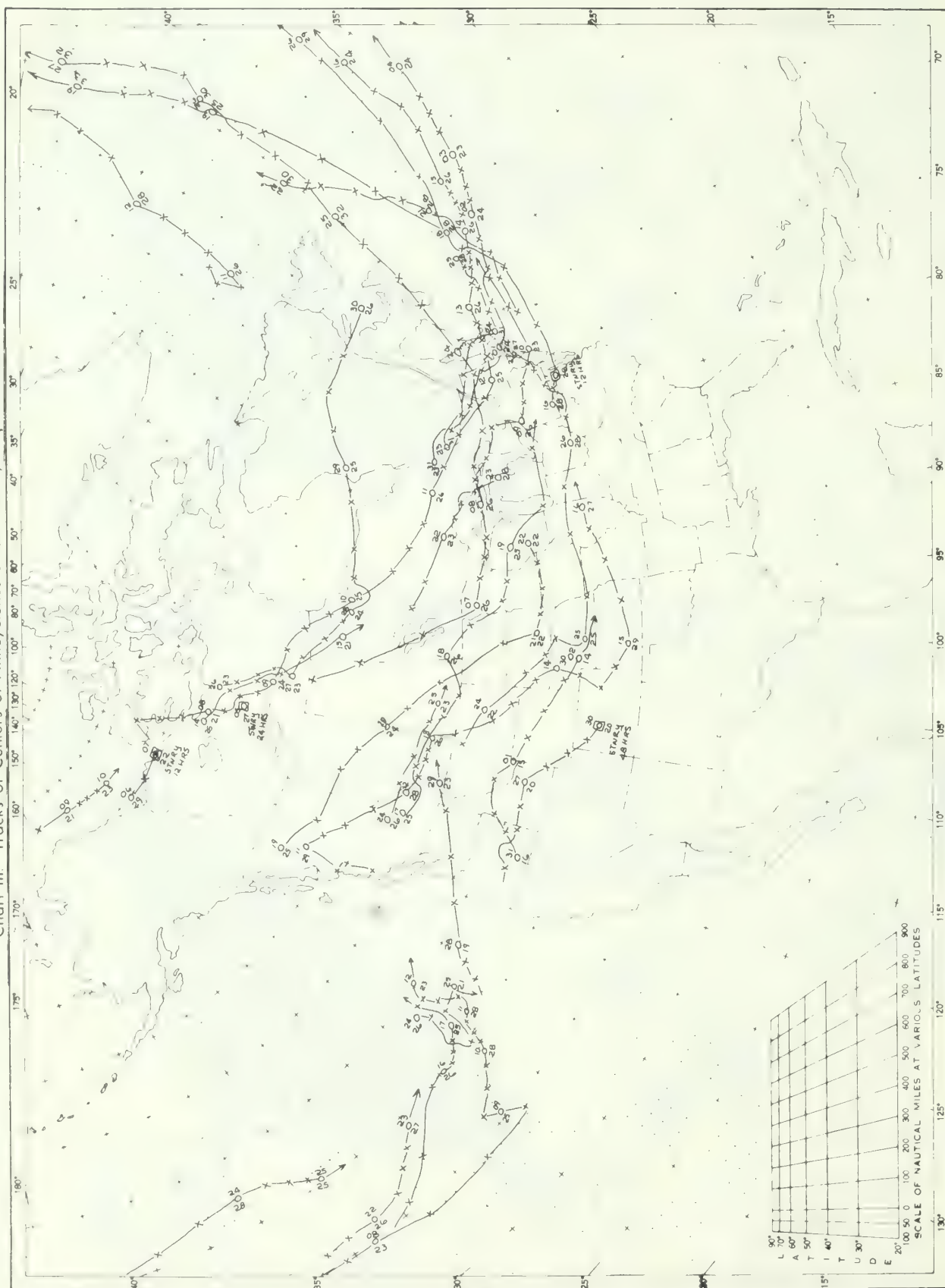


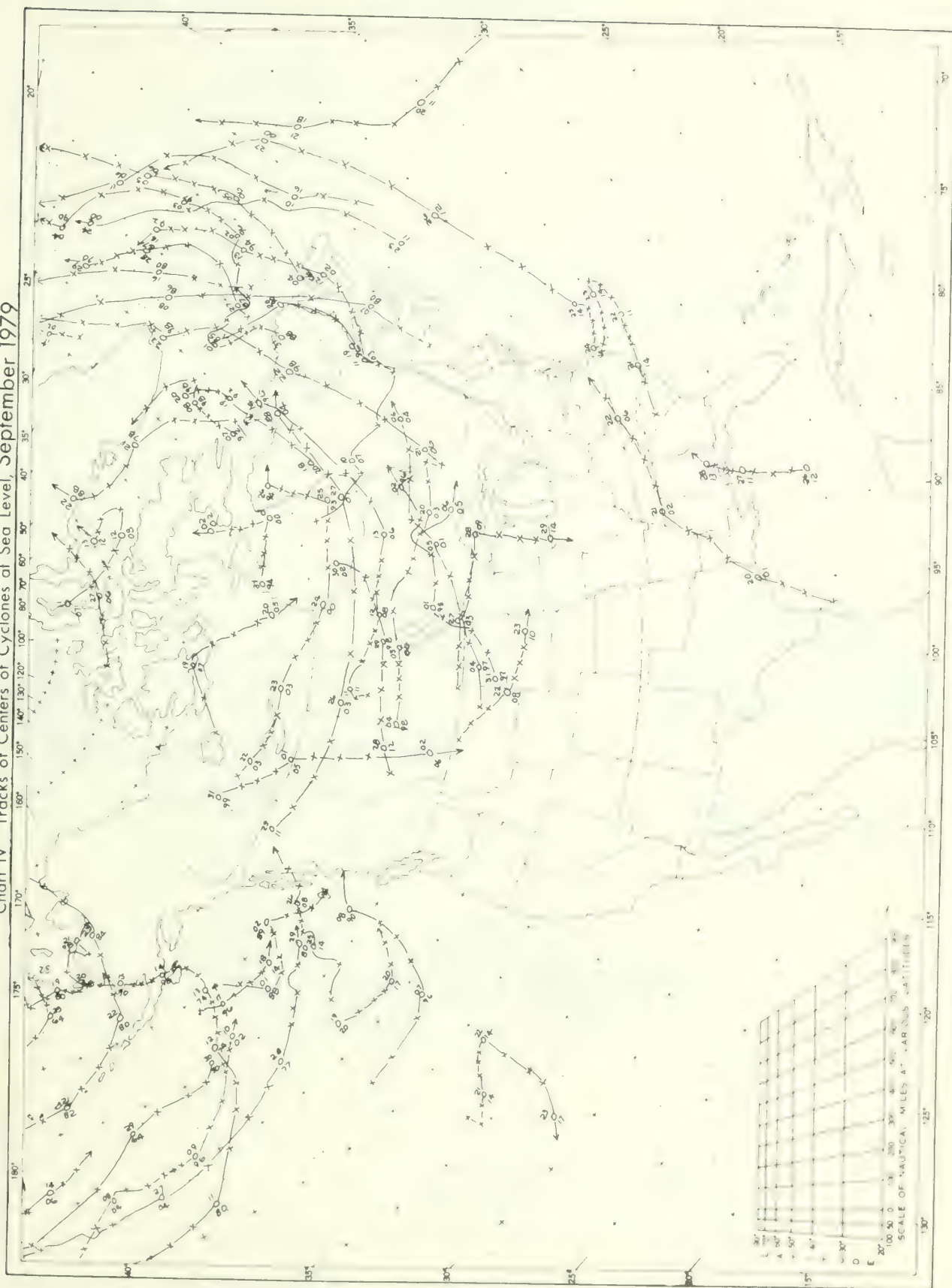


Chart III. Tracks of Centers of Anticyclones at Sea Level, September 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 'x' s indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart IV Tracks of Centers of Cyclones at Sea Level, September 1979



Circle indicates position of center at 700 mb. Figure above circle indicates date, figure below, pressure to nearest millibar. X's indicate intervening 6 hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

OCTOBER 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Early in October, rain was generally confined to the eastern United States. The already too wet mid-Atlantic States and eastern New England continued to accumulate surplus moisture. By the end of October, nearly twice the normal amount of rain had fallen.

Seasonal precipitation began in the West at mid-month. Rain or snow in some amount fell nearly everywhere in the West. Well above normal amounts were recorded in all but the Southwest. Near the end of the month, a severe storm brought blizzard conditions to the western Plains and heavy rain to the eastern Plains. Goodland, KS, measured a record 17.6 inches of snow during October.

Average temperatures for the month were above normal in the West and colder than normal in the East.

Rainfall was confined to the area from the eastern Plains to the east Coast in the first week of October. The area of heaviest rain extended from the New England Coast into central Virginia where more than 2 inches were recorded. Moderate rain fell in the Great Lakes area and from the central Mississippi Delta through South Carolina. Average temperatures for the week were very warm in the west and generally cool in the east except for New England.

Rainfall was generally sparse over the Nation for the week of the 8th-14th, except in West Virginia, Virginia, and Maryland. A freak snowstorm hit the western portion of this area and deposited as much as a foot of snow in some parts. Fully foliated trees toppled under the unusual weight. Temperatures warmed west of the Rockies and got colder in the east. The freeze line plunged as far south as Tennessee in the Mississippi River Valley. Average temperatures for the week ranged from 9 to 12° colder than normal in the upper Mississippi Valley.

Seasonal rains began in the west during the week of the 15th-21st. Heavy amounts accumulated in the coastal area of the Pacific Northwest, and lesser amounts fell through the entire west. Snow fell on the higher elevations. Elsewhere, moderate to heavy rain fell from north central Texas to the western Lakes area. The winter grain area in the central Plains got some much-needed rain, but the western portion needed more. Average temperatures for the week were near normal in most of the west but well above normal in the east.

Rain continued in the northwest during the week of the 22d-28th. The coastal area from northern California through Washington recorded heavy amounts. The southwest, most of the Rockies, and the western Plains had little or no precipitation. A series of low pressure centers deepened in the western Great Lakes area and moved northeastward. Lines of weather from the low centers southward brought rain to most of the east. Heavy snow blanketed northern Michigan. One to 2 inches of rain fell in Iowa, and severe weather, with several tornadoes, moved through the lower Mississippi Valley. Cold air moved into the east and plunged temperatures. Average temperatures for the week in parts of the Midwest were about 6° colder than normal.

The last days of the month, the 29th-31st, brought some significant weather. A severe autumn storm formed in the southern Rockies and moved northeastward and eastward. Blizzard conditions ensued throughout the western Plains. Heavy snow and winds to 60 mph stressed livestock in the southwestern Plains. Heavy rain through the winter grain area brought soil moisture levels up. Cold weather moved in behind the storm and some record cold temperatures were noted.



## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

OCTOBER 1979

STATE	Temperature						Precipitation					
	Monthly extremes						Monthly extremes					
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.		
Alabama	Chato 4 N	91	2	Hamilton 3 S	-28	25+	Coden	7.79	Newton	.20		
Alaska	3 Stations	85	2+	Galbraith	-31	29	Pelican	12.91	Tok	.04		
Arizona	Gila Bend	108	4+	Hawley Lake	8	31	Bright Angel Ranger Station	2.60	18 Stations	.00		
Arkansas	3 Stations	95	12+	Bentonville	25	11+	De Queen	6.41	Saint Francis	1.50		
California	3 Stations	106	6+	White Mountain 2	2	29	Occidental	14.91	11 Stations	.00		
Colorado	Independence Pass 5 SW	98	8		-10	31	Wolf Creek Pass 1 E	7.58	Saguache	.13		
Connecticut	Falls Village	87	2+		21	31	West Hartford	7.55	Brooklyn	2.58		
Delaware	Middletown 1 WSW	86	21	3 Stations	30	27+	Dover	5.20	Lewes 1 SW	3.01		
Florida	Mountain Lake	85	22	Fountain 3 SSE	31	26	Fort Lauderdale	7.91	2 Stations	.00		
Georgia	2 Stations	91	2+	Blairsville Exp Station	25	27+	Winder 1 SSE	4.98	Plains SW GA Exp Station	.04		
Hawaii	Puukohola Heiau 98.1	95	2+	Mauna Kea Obs 111.2	20	3	Kukui 380	24.00	Campbell Ind Pk 702.5	.13		
Idaho	3 Stations	93	2+	Tetonia Exp Station	4	30	Pierce	4.12	Cibberville	.16		
Illinois	90	9+		2 Stations	19	26	Peotone	4.64	Piper City 3 SE	.77		
Indiana	Crane Naval Depot	90	1	Rockville	20	27	La Porte	4.88	Edwardsport Power Plant	1.02		
Iowa	Sidney	88	20	Corning	15	14+	Omaha	6.96	Fort Madison	1.98		
Kansas	Kingman	100	8	2 Stations	22	11	Hutchinson Exp Field	11.52	Wellington 2 S	1.01		
Kentucky	3 Stations	88	21+	5 Stations	24	28+	Frenchburg 2 W	4.01	Lovellville	1.17		
Louisiana	6 Stations	94	24	4 Stations	35	25+	Winton	9.32	Saint Bernard	.52		
Maine	3 Stations	85	23+	2 Stations	16	18+	West Rockport 1 NNW	8.16	Caribou WSO AP	1.68		
Maryland	2 Stations	85	24	Oakland 1 SE	15	27	Damascus 2 SW	8.64	Assateague State Park	2.13		
Massachusetts	Chester 2	91	22	Chester 2	15	27	New Salem	8.66	Boston WSO AP	3.14		
Michigan	Washington 2 NNW	84	1	Ironwood	12	26	Chatham Exp Farm	7.95	Port Huron	1.08		
Minnesota	Browns Valley	84	1	3 Stations	9	26+	Beaver	6.44	Caribou 2 S	.63		
Mississippi	3 Stations	92	21+	2 Stations	14	29	Leakeville	5.45	Chalson 8 W	.42		
Missouri	Appleton City	93	8	Berryman 1 NW	18	14	Bolivar 1 NE	8.01	Zalma 4 E	.79		
Montana	3 Stations	85	10+	West Yellowstone	1	11	Hungry Horse Dam	3.04	Moccasin Exp Station	.07		
Nebraska	3 Stations	83	1	Atkinson	12	13	Lyons	6.96	Stockville	.70		
Nevada	Sunrise Manr Las Vegas	103	2	Rand Ranch Palisade	9	30	Metropolis	3.43	10 Stations	.00		
New Hampshire	3 Stations	86	22	Mount Washington	8	27	South Lyndeboro	6.80	Jefferson 4 S	2.10		
New Jersey	3 Stations	88	14	Long Valley	22	27	Pottersville 2 NNW	6.40	Atlantic City	2.07		
New Mexico	3 Stations	99	8+	Wolf Canyon	6	11	San Jon	2.21	25 Stations	.00		
New York	New York Central Hill	90	22	2 Stations	19	31+	Houker 4 N	7.64	Ticonderoga 3 NE	1.53		
North Carolina	Hendersonburg	89	2	Henderson NNW	20	28+	Casar	6.23	Wilmington WSO AP	.38		
North Dakota	3 Stations	86	1	5 Stations	9	13	Fargo WSO AP	2.60	2 Stations	.06		
Ohio	Newark Waterworks	87	22	3 Stations	18	27+	Chardon	6.45	Akron	1.03		
Oklahoma	3 Stations	103	8	Boise City 2 E	24	30	Broken Bow 1 N	6.36	Grandfield	.24		
Oregon	Lost Creek Dam	98	4	2 Stations	13	24+	Otis 2 NE	13.47	Drewsey	.17		
Pennsylvania	3 Stations	90	24	Slippery Rock 1 SSW	15	27	York 3 SSW Pump Station	7.60	Weedville 1 N	1.52		
Rhode Island	Maguways Island	108	25	Adjuntas Substation	51	31	Coloso	15.77	2 Stations	1.17		
Rhode Island	Providence WSO AP	86	2+	Kingston	24	27	Kingston	4.63	Woonsocket	3.21		
South Carolina	Sandhill Exp Station	92	1	Longcreek	27	14	Hugback Mountain	4.90	Little Mountain	.22		
South Dakota	2 Stations	92	7+	2 Stations	9	13	Bonesteel	4.25	Maurine 10 SW	.15		
Tennessee	2 Stations	84	22+	Tazewell	23	27	Monterey	6.55	Dresden	1.60		
Texas	2 Stations	86	3+	Dell City 5 SSW	23	31	Port Arthur WSO AP	6.62	54 Stations	.00		
Utah	1 Station	96	1	Uintalands	4	31	Alta	5.16	Boulder	.00		
Vermont	4 Stations	84	1+	Mount Mansfield	16	27	Mount Mansfield	5.70	Bristol 5 NNW	1.31		
Virginia	Charlotte Court House	88	2	Monterey	16	27	Sterling (RCS)	10.58	Williamsburg 2 N	1.57		
Virgin Islands	Truman Field FAA AP	94	2	2 Stations	67	23+	Mountain	6.62	Lanesbur Bay	1.25		
Washington	Glenoma 1 W	91	2+	2 Stations	20	31	Spruce	13.08	Smyrna	.58		
Washington	3 Stations	88	22+	Seneca State Forest	10	27	Thomas	8.12	New Cumberland	1.83		
Wisconsin	Whalen Dam	89	22	1 Station	12	26	Owen	7.47	Burlington	1.56		
Wyoming	Whalen Dam	89	8	Old Faithful	-6	30	Seminole Dam	2.69	Thermopolis 25 NNW	.04		

## OCTOBER 1979

Station and Station	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)	Possible sunshine											
	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Departure from normal	Date		No. of days	Average dew point	Average relative humidity	Total	Greatest in 24 hours	25 mm. or more	No. of days	Snow, ice pellets	Resultant speed	Resultant direction				Speed	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10					
							Highest	Lowest																				Max 32° F. or above	Min. 0° C. or lower	Total	With thunderstorms	Maximum depth on ground
51	79	29.92	101.7	10.1	16.6	-2.0	3.9	14	0	0	83	5	-1.4	2	1	0	17	13.0	15	31	16	7	6	3	7							
52	79	29.92	101.7	10.1	17.7	-0.7	28.9	21	0	0	83	4	7.1	27	4	0	0	4	13	13.0	15	31	20	8	3	3						
53	79	29.92	101.7	10.1	20.1	-0.4	31.7	1	0	0	13.3	70	71	51	3	0	0	0	9	10.3	15	4	3	3	3							
54	79	29.92	101.7	10.1	14.7	-0.3	5.0	24	0	0	10.6	66	1	-0.2	0	0	0	0	0	10.3	15	4	3	3	3							
55	79	29.92	101.7	10.1	5.1	3.5	17.9	1	0	8	2.2	83	6	2	0	0	0	0	12	12.4	14	6	2	4	2							
56	79	29.92	101.7	10.1	9.4	1.2	14.1	24	0	0	6.7	82	203	141	0	0	0	0	4	11	12.4	12	1	2	4							
57	79	29.92	101.7	10.1	7.2	2.1	1.1	2	0	30	-10.6	79	10	11	0	0	0	0	4	11	12.4	12	1	2	4							
58	79	29.92	101.7	10.1	5.8	2.4	1.7	1	0	14.4	-7.2	90	2	1	0	0	0	0	4	11	12.4	12	1	2	4							
59	79	29.92	101.7	10.1	1.1	2.1	13.3	1	0	11.1	-8.8	89	29	1	0	0	0	0	4	11	12.4	12	1	2	4							
60	79	29.92	101.7	10.1	-2.4	4.2	10.0	11	0	-13.3	-8.8	82	2	0	0	0	0	0	4	11	12.4	12	1	2	4							
61	79	29.92	101.7	10.1	1.6	5.7	16.7	1	0	-15.0	-8.8	89	18	0	0	0	0	0	4	11	12.4	12	1	2	4							
62	79	29.92	101.7	10.1	3.2	1.5	17.9	1	0	-13.6	-8.8	70	18	0	0	0	0	0	4	11	12.4	12	1	2	4							
63	79	29.92	101.7	10.1	1.3	4.2	14.4	1	0	-15.0	-8.8	70	2	0	0	0	0	0	4	11	12.4	12	1	2	4							
64	79	29.92	101.7	10.1	5.6	2.4	12.9	4	0	-2.8	20	62	13	0	0	0	0	0	4	11	12.4	12	1	2	4							
65	79	29.92	101.7	10.1	7.3	1.9	17.3	18	0	-11.7	25	0	9	0	0	0	0	0	4	11	12.4	12	1	2	4							
66	79	29.92	101.7	10.1	4.1	3.4	17.3	19	0	-10.6	28	0	13	0	0	0	0	0	4	11	12.4	12	1	2	4							
67	79	29.92	101.7	10.1	7.6	2.7	15.6	1	0	-2.2	28	0	2	0	0	0	0	0	4	11	12.4	12	1	2	4							
68	79	29.92	101.7	10.1	1.9	10.0	2	2	0	-16.1	24	0	26	0	0	0	0	0	4	11	12.4	12	1	2	4							
69	79	29.92	101.7	10.1	4.6	13.6	3	1	0	-11.7	24	0	21	0	0	0	0	0	4	11	12.4	12	1	2	4							
70	79	29.92	101.7	10.1	1.5	3.4	12.2	4	0	-10.6	26	0	20	0	0	0	0	0	4	11	12.4	12	1	2	4							
71	79	29.92	101.7	10.1	4.3	3.1	10.6	6	0	-2.2	21	0	3	0	0	0	0	0	4	11	12.4	12	1	2	4							
72	79	29.92	101.7	10.1	3.0	2.9	14.4	1	0	-8.9	20	0	20	0	0	0	0	0	4	11	12.4	12	1	2	4							
73	79	29.92	101.7	10.1	5.3	2.2	12.2	14	0	-2.2	14	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
74	79	29.92	101.7	10.1	7.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
75	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
76	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
77	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
78	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
79	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
80	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
81	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
82	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
83	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
84	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
85	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
86	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
87	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
88	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
89	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
90	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
91	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
92	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
93	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
94	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
95	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
96	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
97	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
98	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
99	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							
100	79	29.92	101.7	10.1	5.3	2.4	13.3	18	0	-3.3	19	0	5	0	0	0	0	0	4	11	12.4	12	1	2	4							

## CLIMATOLOGICAL DATA

METRIC UNITS

October 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)	Sky cover, tenths (sunrise to sunset)											
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Total	mm	mm	mm			m/s	Direction	Date								
												Max 32.2 °C or above	Min. 0 °C or lower										Average dew point	Average relative humidity	Departure from normal	Greatest in 24 hours	25 mm. or more	Maximum depth on ground	Residual speed	Residual direction
ALABAMA	2277	mb	mb	°C	°C	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	mm	mm	m/s												
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9	27.2	7	-13.3	22	0	27	0	-2.8	44	14	16.1	1	33	30									
ALABAMA	1872	11.7	1014.4	19.0	-3.0	7.0	6.9																							





## CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1974

[illegible]



## METRIC UNITS

OCTOBER 1979

[illegible]



## CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation				Wind				No. of days (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1.6 kilometers)	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)	Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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## CLIMATOLOGICAL DATA

METRIC UNITS

OCTOBER 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days (sunrise to sunset)			Possible sunshine (sunrise to sunset)					
		Station #	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days		Snow, ice pellets		Resultant speed					Resultant direction	Speed (1.6 kilometers)	Direction		
												Max 32.2 °C or above	Min. 0 °C or lower						With thunderstorms	Total	Maximum depth on ground											
																						°C		°C	°C	°C					°C	°C
WASHINGTON																																
FAIRFAC-TRINOMA	122	599.3	1015.6	15.9	8.7	12.3	1.1	25.0	3	5.0	29+	0	0	7.2	73	86	-1.1	20	13	0	0	0	0.8	13	12.5	5	25	6	7	18	7.2	43
FOUNCE-TRINOMA	718	931.9	1016.1	16.8	4.4	10.6	1.6	27.2	6	-2.2	31	0	2	1.7	61	31	-5	23	6	0	0	0	1.1	17	10.7	5	19	11	5	15	5.9	68
STANFORD PASS P	1236	873.4	1016.1	12.8	3.9	7.4	2.0	21.7	12	-2.2	28	0	0	0	0	126	-10.0	24	14	0	569	22.9	0	0	0	10	3	10	3	18	6.4	54
WALLA WALLA	789	789	1015.9	20.1	8.8	14.4	2.0	30.0	5	2.8	31	0	0	0	0	68	3	3	10	0	0	0	0	0	13.0	5	22	9	7	15	5.9	54
YAKIMA	321	577.3	1015.9	19.3	3.0	11.6	1.6	27.8	7	-2.2	31	0	4	3.3	63	19	4	12	5	0	0	0	1.5	26	10.7	23	25	12	7	12	5.1	51
WEST INDIES																																
SAN JUAN S.P.	4	1010.8	1013.5	32.3	24.4	28.3	1.3	35.0	23	23.3	1	16	0	24.4	82	31	-11.4	20	10	4	0	0	1.9	10	11.2	4	5	22	4	5.2	84	
WEST VIRGINIA																																
WHEELING	768	927.9	1016.7	15.6	4.9	10.3	-1.3	26.1	21	-5.0	27	0	6	6.7	83	62	3	18	15	3	69	25	1.6	23	11.2	14	31	6	8	17	7.2	38
CHARLESTON	713	981.4	1016.7	18.6	6.5	12.6	-1.3	30.0	21	-3.3	27	0	4	6.7	73	97	31	41	13	5	1	0	1.6	23	7.6	18	31	7	7	17	6.9	32
ELIZABETH	594	945.5	1016.7	15.4	3.4	9.4	-1.4	26.1	22	-8.3	27	0	8	0	73	131	62	39	17	99	76	0	0	0	0	27	23	4	8	19	7.4	41
MARTIN	257	968.8	1016.7	18.7	7.2	13.0	-0.9	29.4	22	-2.2	27	0	4	6.7	70	58	15	44	12	3	0	0	1.4	22	10.3	27	23	6	8	17	7.2	64
MARTIN	137	968.8	1016.7	17.3	7.3	12.3	-1.6	28.3	22	-2.2	27	0	2	0	75	75	22	22	11	1	0	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	20	985.8	1011.8	12.2	3.1	7.7	-1.9	23.9	21	-5.6	14	0	7	5.0	83	67	27	30	14	3	1	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	138	985.8	1012.4	13.6	3.8	8.7	-2.3	23.3	20	-4.4	26	0	9	2.0	83	112	63	43	13	6	1	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	282	985.4	1012.4	14.6	2.6	8.6	-1.3	27.2	21	-7.2	26	0	9	4.7	76	77	24	43	9	3	1	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	20	985.5	1011.8	14.9	5.2	10.6	0.1	26.1	21	-2.8	26	0	3	6.7	79	4	-5	14	10	3	1	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	1827	937.4	1015.3	17.2	0.3	8.6	0.1	28.3	7	-9.4	31	0	15	-3.3	49	17	-12	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	1807	937.4	1015.3	17.2	2.3	9.9	1.1	28.2	7	-6.3	31	0	15	-4.4	41	12	-10	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	1807	937.4	1015.3	17.2	2.3	9.9	1.1	28.2	7	-6.3	31	0	15	-2.2	49	12	-10	6	8	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW YORK	1807	937.4	1015.3	17.2	1.2	9.3	0.6	28.3	7	-5.0	31	0	13	0.0	59	52	-3	23	8	0	0	0	0	0	0	0	0	0	0	0	0	0

# HEATING DEGREE DAYS

(Base 65°F.)

OCTOBER 1979

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				IDAHO				NEBRASKA				TENNESSEE			
BIRMINGHAM U	136	137	161	BOISE	326	359	545	GRAND ISLAND	366	434	475	BRISTOL	323	352	286
BIRMINGHAM	101	101	143	LEWISTON	281	307	550	LINCOLN	324	376	417	CHATTANOOGA	167	167	191
HUNTSVILLE	152	152	170	POCATELLO	422	499	727	NORFOLK	430	503	537	KNOXVILLE	220	220	185
MOBILE	45	43	39					NORTH PLATTE	341	408	595	MEMPHIS	76	76	149
MONTGOMERY	76	76	93	ILLINOIS				OMAHA (EPPELY)				NASHVILLE	180	185	190
				CAIRO U	154	138	168	OMAHA (NORTH)	354	421	458	OAK RIDGE	267	274	236
ALASKA				CHICAGO O HARE	362	479	475	SCOTTSDALE	363	428	627				
ANCHORAGE	735	1441	1945	CHICAGO MIDWAY	367	443	381	VALENTINE	478	593	642	TEXAS			
ANNETTE	490	1083	1333	MOLINE	415	537	434					ABILENE	43	43	89
FARROW	1419	3525	4246	PEORIA	401	493	405	NEVADA				AMARILLO	186	216	226
PARLER ISLAND	1342	3617	4093	ROCKFORD	450	605	513	ELKO	320	356	896	AUSTIN	16	16	39
BETHEL	952	2258	2392	SPRINGFIELD	323	382	338	ELY	464	705	939	BROWNSVILLE	0	0	5
BETTES	1154	2221	2782					LAS VEGAS	44	44	74	CORPUS CHRISTI	6	6	7
RIS DELTA	925	1641	2179	INDIANA				RENO	339	432	691	DALLAS FT WORTH	34	34	60
COLD BAY	712	1973	2205	EVANSVILLE	290	319	270	WINNEHCCA	363	457	765	DEL RIO	10	10	34
FAIRBANKS	1004	1819	2304	FORT WAYNE	440	573	465					EL PASO	56	80	92
GULKANA	944	1917	2446	INDIANAPOLIS	384	467	370					GALVESTON	7	7	12
HOMER	692	1732	2161	SOUTH BEND	353	446	496	NEW HAMPSHIRE				HOUSTON INTERCON	27	27	24
JUNEAU	609	1480	1813					CONCORD	546	842	730	LURBOCK	104	113	170
KING SALMON	788	1717	2177	IOWA				MT WASHINGTON OBS	1090	2842	2813	MIDLAND	63	66	81
KODIAK	597	1390	1854	RUPLINGTON	359	431	398					PORT ARTHUR	23	23	35
KOTZEBUE	1168	2467	2818	DES MOINES	339	407	457	NEW JERSEY				SAN ANGELO	57	57	73
MC GRATH	958	1976	2443	DUBUQUE	449	592	594	ATLANTIC CITY U	275	310	222	SAN ANTONIO	15	15	32
NOME	935	2336	2771	SILOUX CITY	457	552	501	NEWARK	289	323	277	VICTORIA	20	20	15
ST. PAUL ISLAND	667	2109	2602	WATERLOO	431	516	596	TRENTON U	328	386	291	WACO	43	43	51
TALKEETNA	852	1690	2129									WICHITA FALLS	57	57	92
UNALAKLEET				KANSAS				NEW MEXICO							
VALDEZ	724	1786	2174	CONCORDIA	233	271	348	ALBUQUERQUE	148	171	225	UTAH			
YAKUTAT	609	1621	1986	DODGE CITY	237	271	288	POSWELL	275	358	397	MILFORD	361	397	570
				GOODLAND	337	467	495					SALT LAKE CITY	270	277	512
ARIZONA				TOPEKA	267	316	314								
FLAGSTAFF	526	937	934	WICHITA	156	166	243	NEW YORK				VERMONT			
PHOENIX	11	11	17					ALBANY	468	687	588	BURLINGTON	528	829	762
TUCSON	26	26	29	KENTUCKY				BINGHAMTON	522	836	689				
WINSLOW	229	235	271	COVINGTON	346	421	315	BUFFALO	455	640	602	VIRGINIA			
YUMA	2	2	0	LEXINGTON	307	352	286	NEW YORK U	271	299	234	LYNCHBURG	320	353	267
				LOUISVILLE	244	263	276	NEW YORK KENNEDY	313	366	289	NORFOLK	190	190	150
ARKANSAS								NEW YORK LA GUARDIA	295	334	254	RICHMOND	242	250	224
FORT SMITH	123	131	135	LOUISIANA				ROCHESTER	468	673	559	ROANOKE	329	390	267
LITTLE ROCK	80	80	148	BATON ROUGE	44	44	54	SYRACUSE	454	658	541	WALLOPS ISLAND	203	206	190
NO. LITTLE ROCK	98	103	128	LAKE CHARLES	25	25	36								
				NEW ORLEANS	13	13	40	NORTH CAROLINA				WASHINGTON			
CALIFORNIA				SHREVEPORT	52	52	70	ASHEVILLE	299	348	319	OLYMPIA	404	699	836
BAKERSFIELD	22	22	55					CAPE HATTERAS R	112	112	76	QUILLAYUTE	382	823	1078
BISHOP	232	238	305	MAINE				CHARLOTTE	197	212	162	SEATTLE	304	417	604
BLUE CANYON	400	710	534	CARIBOU	612	1119	1190	GREENSBORO	239	267	233	SEATTLE-TACOMA	327	480	729
EUREKA U	231	696	1099	PORTLAND	539	882	775	RALEIGH	196	209	198	SPOKANE	423	559	797
FRESNO	56	56	90					WILMINGTON	110	112	80	STAMPEDE PASS R	602	1504	1710
LONG BEACH	21	21	55	MARYLAND								WALLA WALLA U	223	239	419
LOS ANGELES	18	18	134	BALTIMORE	311	338	277	NORTH DAKOTA				YAKIMA	371	463	666
LOS ANGELES U	1	1	40					BISMARCK	626	883	869				
MT SHASTA R	401	638	668	MASSACHUSETTS				FARGO	689	876	838	WEST VIRGINIA			
OAKLAND	47	108	348	BLUE HILL OBS R	445	639	407	WILLISTON	560	754	929	BECKLEY	448	629	526
RED BLUFF	89	89	82	BOSTON	390	487	365					BLACKSTON	331	385	313
SACRAMENTO	100	100	106	WORCESTER	500	758	593	OHIO				ELKINS	491	706	615
SAN DIEGO	4	4	65					AKRON	444	625	495	HUNTINGTON	312	355	311
SAN FRANCISCO	95	209	380	MICHIGAN				CINCINNATI ABBE OB	333	391	282	PARKERSBURG U	346	416	314
SAN FRANCISCO U	64	363	608	ALPENA	630	999	999	CLEVELAND	403	521	475				
SANTA MARIA	97	228	467	DETROIT	459	596	433	COLUMBUS	376	486	426	WISCONSIN			
STOCKTON	60	60	88	DETROIT METRO	471	638	493	DAYTON	397	518	377	GREEN BAY	590	806	757
				FLINT	477	650	630	MANSFIELD	453	648	421	LA CROSSE	535	689	578
COLORADO				GRAND RAPIDS	431	578	558	TOLEDO	440	610	501	MADISON	546	766	700
ALAMOSA	590	1041	1093	HOUGHTON LAKE	597	950	940	YOUNGSTOWN	445	658	533	MILWAUKEE	436	551	631
COLORADO SPRINGS	407	542	633	LANSING	491	659	591								
DENVER	347	425	528	MUSKEGON	492	710	610	OKLAHOMA				WYOMING			
GRAND JUNCTION	209	212	364	SAULT STE MARIE	696	1204	1095	OKLAHOMA CITY	92	94	160	CASPER	523	682	795
PUEBLO	299	352	390					TULSA	90	90	153	CHEYENNE	468	637	808
				MINNESOTA								LANDER	463	608	812
CONNECTICUT				DULUTH	674	1093	1100	OREGON				SHERIDAN	497	643	837
BRIDGEPORT	360	465	303	INTERNATIONAL FALLS	862	1423	1209	ASTORIA	305	599	893				
HARTFORD	442	646	502	BOSTON	566	695	677	BURNS U	434	615	873				
				POCHESTER	500	710	726	EUGENE	257	359	577				
DELAWARE				ST CLOUD	623	930	822	WEDFORD	203	218	481				
WILMINGTON	318	360	286					PENDELTON	326	381	500				
				MISSISSIPPI				PORTLAND	214	243	570				
DIST. OF COLUMBIA	337	409	334	JACKSON	98	98	91	SALEM	315	436	582				
WASHINGTON DULLES	231	236	204	MEPIDIAN	93	93	111	SEXTON SUMMIT R	405	803	841				
WASHINGTON NATIONAL															
				MISSOURI				PENNSYLVANIA							
FLORIDA				COLUMBIA REGIONAL	261	301	289	ALLEN TOWN	386	497	435				
APPALACHICOLA U	10	10	22	KANSAS CITY	247	292	309	ERIE	378	515	623				
DAYTONA BEACH	0	0	0	ST JOSEPH	263	316	319	HARRISBURG	393	490	344				
FORT MYERS	0	0	0	ST LOUIS	223	239	259	PHILADELPHIA	324	363	287				
JACKSONVILLE	19	19	19	SPRINGFIELD	184	216	268	PITTSBURGH	438	598	493				
KEY WEST	0	0	0					SCRANTON	420	605	532				
MIAMI	0	0	0	MONTANA				WILLIAMSPORT	438	603	479				
ORLANDO	0	0	0	BILLINGS	383	436	733								
PENSACOLA	19	19	32	GLASGOW	489	626	605	RHODE ISLAND							
TALLAHASSEE	54	54	31	GREAT FALLS	482	622	844	BLOCK ISLAND	315	414	400				
TAMPA	0	0	0	HAYRE	495	641	892	PROVIDENCE	380	510	453				
WEST PALM BEACH	0	0	0	HELENA	528	681	1005								
				KALISPELL	595	853	1256	SOUTH CAROLINA							
GEORGIA				MILES CITY	437	518	750	CHARLESTON	68	68	74				
ATHENS	134	140	138	MISSOULA	517	688	1059	CHARLESTON U	32	32	50				
ATLANTA	122	127	145					COLUMBIA	138	144	112				
AUGUSTA	125	129	104					GRANVILLE-SPRTNBGR	193	203	154				
COLUMBUS	59	60	81												
MACON	79	82	82					SOUTH DAKOTA							
ROME	198							ABERDEEN	585	756	765				
SAVANNAH	41	41	60					HUPON	574	728	673				
								RAPID CITY	433	525	695				
								SIOUX FALLS	512	643	658				



(BASE 6) F<sub>2</sub>

OCTOBER 1979

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# STORM SUMMARY

OCTOBER 1979

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				ⓂHEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				Ⓜ ALL OTHER				
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS									
Alabama												2																		
Alaska												5																		
Arizona												4															1	5		
Arkansas	1	1	1	2	4			?	?		2	?	?			3														
California																										1		5		
Colorado																		6	1	6	7									
Connecticut	1	1	3	500	8											5												4		
Delaware																														
Florida	1	1			4																									
Georgia								?	?			5	?		1	5														
Hawaii																												4	?	
Idaho												4																		
Illinois	1	1			4						2	4																		
Indiana	5	2			4			5			1	5				5														
Iowa	1	1			5							4													4					
Kansas	3	2		17	6			6	5		3	6				5									7					
Kentucky												4																		
Louisiana	2	1		17	6					2	1	5																4		
Maine												4																		
Maryland & DC											1	5				4									5			3		
Massachusetts												6				?												4		
Michigan	1	1			4						2	4																		
Minnesota	*																													
Mississippi																														
Missouri	2	2		7	6					1	7	5				4														
Montana																														
Nebraska	1	1			5																			5						
Nevada																														
New Hampshire																														
New Jersey											?	5	?				3									?	?	4	?	
New Mexico																														
New York																														
North Carolina																														
North Dakota	1	1			3																				05	C				
Ohio	*																													
Oklahoma	2	2	3	2	5			5	5		8	6	5	1		?	?								6	5				
Oregon	*																													
Pacific																														
Pennsylvania	6	2		1	5							4				5									4	4				
Puerto Rico	*																													
Rhode Island												4																3		
South Carolina											2	4																		
South Dakota																									5					
Tennessee	*																													
Texas	15	4		7	6			6	1		2	6	?			?	?								?	7	?		6	?
Utah	*																													
Vermont	*																													
Virginia	2	1			4			4	4			4													6			4		
Virgin Islands	*																													
Washington	*																													
West Virginia	1	1		1	5																				5	4				
Wisconsin	1	1			4								?	?											?	?				
Wyoming	*																													



## Average monthly values

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ALBUQUERQUE, NM 1000 MB					ALBUQUERQUE, NM 810 MB					APARTILLO, TX MS					ANCHORAGE, AK 995 MB					ANNETT, GA 1007 MB					
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction ten of deg	Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction ten of deg	Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction ten of deg	Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Resultant Wind Direction ten of deg	Speed m p s	
500	31	186	-7.5	-5.7	22	1.6	31	1619	-7.7	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
1000	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.7	31	1619	-8.1	-1.4	9	1.1	31	1095	-9.9	-1.2	21	1.1	31	45	-9.6	-1.0	11	-7	31
30	31	186	-8.1	-5.7	21	1.																			



## Average monthly values

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DODGE CITY, KS 923 MB										EL PASO, TX 887 MB										ELY, NV P10 MB										EMPALME, MEXICO 1009 MB										FAIRBANKS, AK 986 MB									
5FC	31	791	8.4	.4	33	1.8	31	1.193	12-1	-1.7	30	.6	31	1.908	3.9	-5.8	20	2.9	30	12	21.0	12.0	34	1.2	31	135	-7.8	-4.1	03	1.3																			
1000	30																		30	90	24.5	13.5	34	1.8	31																								
900	31	996	13.3	1.2	33	1.9													30	54.3	26.6	7.6	34	3.9	31	932	1.6	-3.8	09	2.0																			
850	31	1477	13.0	-4.5	31	3.9	31	1.503	18-1	-2.6	27	2.3							30	1,018	24.5	2.8	34	3.1	31	867	.6	-5.6	15	3.1																			
800	31	2482	11.3	-2.7	31	5.5	31	2,019	15-8	-2.5	27	5.0	29	2,018	8.6	-2.9	19	2.2	30	2,037	18.7	-3.7	26	2.0	31	1,805	-4.0	-9.8	20	4.7																			
750	31	3562	8.4	-5.7	31	6.4	31	2,664	12-5	-5.4	27	7.2	31	2,583	8.4	-4.7	21	2.0	30	2,587	14.9	-6.1	25	2.8	31	2,311	-7.2	-12.8	20	5.7																			
700	31	3408.8	5.3	-9.5	30	7.9	31	3,138	8.6	-9.7	27	7.7	31	3,110	4.5	-7.5	25	4.0	30	3,165	10.8	-8.5	25	2.6	31	2,846	-10.6	-16.6	21	6.6																			
650	31	3485.0	-12.0	-12.0	30	3.9	31	3,746	4.6	-12.0	27	7.9	31	3,709	-4.5	-10.5	26	5.2	30	3,779	1.1	-11.1	24	3.3	31	3,412	-21.1	-21.5	23	6.9																			
600	31	4330.0	-2.7	-16.5	29	10.7	31	4,394	-1.9	-16.0	27	8.1	31	4,346	-3.8	-18.1	26	6.3	30	4,432	3.1	-15.8	24	4.7	31	4,015	-17.8	-25.0	21	7.9																			
550	31	5620.4	-6.9	-20.8	29	12.3	31	5,086	-1.9	-22.1	27	8.4	31	5,028	-8.0	-21.1	26	7.8	29	5,132	-1.1	-20.8	25	4.4	31	4,661	-22.2	-30.3	21	8.6																			
500	31	5751.1	-12.1	-25.1	29	13.6	31	5,831	-3.0	-25.5	27	10.2	31	5,761	-13.2	-25.2	26	9.6	29	5,885	-6.1	-25.0	27	5.4	31	5,355	-27.1	-35.0	21	9.5																			
450	31	6548	-17.9	-30.3	29	14.1	31	6,637	-14.9	-30.9	28	12.1	31	6,556	-18.5	-31.4	26	11.7	28	6,703	-11.9	-29.4	27	7.6	31	6,105	-32.7	-38.9	20	9.9																			
400	31	7418	-24.1	-36.5	29	16.1	31	7,517	-21.6	-36.1	28	14.5	31	7,424	-24.9	-36.0	26	12.5	28	7,592	-18.9	-35.2	28	8.8	31	6,924	-39.1	-42.8	21	10.2																			
350	31	8380	-31.1	-42.7	29	17.6	31	8,489	-28.9	-41.8	28	15.5	31	8,284	-31.9	-40.8	26	13.9	28	8,575	-26.4	-40.1	28	10.8	31	7,826	-46.1																						
300	31	9445.9	-39.9	-48.5	29	19.1	31	9,571	-37.0	-48.0	28	17.1	31	9,433	-39.9	-48.1	26	16.0	28	9,578	-35.0	-46.9	28	12.0	31	8,839	-52.3																						
250	31	10637.4	-48.2		30	20.1	30	10,800	-46.1		26	19.2	31	10,675	-47.6		26	17.6	26	10,914	-44.4		26	16.9	30	10,003	-55.2																						
200	31	12119	-55.9		30	21.0	29	12,259	-58.5		24	20.7	30	12,135	-55.0		27	18.0	28	12,374	-55.1		28	20.1	28	11,440	-51.7																						
175	31	13962	-59.2		30	20.9	29	13,102	-60.1		24	21.2	30	12,983	-57.5		27	17.7	28	13,217	-60.4		28	19.8	28	12,308	-51.2																						
150	31	13428	-62.4		30	19.9	29	14,053	-60.7		24	19.2	30	13,950	-60.6		27	15.0	28	14,164	-66.0		28	16.8	28	13,311	-51.1																						
125	31	15047	-65.0		30	17.0	26	15,162	-64.7		23	13.1	30	15,077	-63.7		28	13.5	26	15,259	-69.9		28	12.7	28	14,497	-50.9																						
100	31	16946	-67.4		30	13.7	26	16,468	-67.1		30	10.7	29	16,436	-66.7		29	10.4	28	16,578	-72.8		29	7.3	28	15,947	-47.8																						
75	31	17756	-65.8		31	9.0	25	17,812	-70.2		30	4.2	28	17,788	-66.4		30	5.9	26	17,889	-71.2		33	2.6	27	17,393	-51.6																						
50	31	18570	-64.5		31	6.6	23	18,611	-67.2		30	2.8	27	18,597	-64.5		31	3.8	26	18,686	-67.8		02	1.0	27	18,259	-52.2																						
25	31	19335	-62.8		30	4.9	23	19,550	-63.9		32	2.1	26	19,544	-63.3		33	3.1	27	19,621	-63.3		06	1.3	27	19,256	-52.4																						
0	31	20395	-60.7		31	3.1	21	20,676	-61.0		36	.6	25	20,672	-61.5		36	2.3	27	20,753	-60.1		08	3.0	27	20,435	-52.6																						
40	31	22400	-58.4		29	3.6	22	22,879	-58.7		35	1.3	23	22,063	-59.8		31	1.3	27	22,157	-56.9		10	5.3	27	21,876	-52.8																						
15	31	23680	-56.3		29	2.6	21	23,866	-57.0		35	1.1	22	23,873	-56.3		30	1.4	27	23,900	-55.4		09	5.0	27	23,581	-52.5																						
2	31	25005	-54.0		28	2.6	22	25,061	-54.1		35	.7	19	25,027	-55.8		29	2.3	27	25,165	-52.5		09	5.8	27	24,904	-53.7																						
20	31	26469	-52.9		28	2.7	22	26,498	-52.9		36	1.1	17	26,448	-53.2		29	4.0	24	26,611	-50.0		07	5.6	26	26,341	-54.1																						
15	31	28103	-50.6		27	2.8	15	28,344	-50.6		21	4.4	11	28,315	-51.0					28	28,500	-47.2		08	5.5	23	28,193	-54.0																					
10	31	30498	-47.6		28	10.2	7	31,120	-48.1											9	31,227	-43.0		11	30,792	-53.8																							

## Average monthly values

OCTOBER 1979

FLINT, MT 933 MB												GREEN BAY, MT 933 MB												GRAND JUNCTION, CO 933 MB												LEWIS & CLARK, MT 880 MB												GREEN BAY, WI 935 MB											
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind																			
565	31	210	7.6	5.7	22	1.6	31	6.97	5.1	0	3	5	31	1.87	9.5	-3.4	11	7	11	1.11	6.7	-1.9	22	2.7	31	511	7.0	5.2	30	1.2	31	511	5.8	1.4	30	2.4																							
100	31	579	7.6	3.4	24	4.4	31	1.867	7.1	-1.6	11	6.9	25	1.819	11.4	-4.0	13	3.3	11	1.88	6.8	-2.3	25	5.0	31	1,419	2.4	-2.7	29	4.7																													
910	31	973	5.6	1.7	26	6.8	31	994	9.2	2	11	4.2													31	945	4.4	-4.5	29	3.6																													
850	31	1,471	3.7	-1.9	27	7.6	31	1,867	7.1	-1.6	11	6.9	25	1,819	11.4	-4.0	13	3.3	11	1,88	6.8	-2.3	25	5.0	31	1,419	2.4	-2.7	29	4.7																													
800	31	1,929	7	-13.2	27	8.1	31	1,963	3.9	-4.3	31	8.9	31	2,008	11.4	-4.2	14	7.3	11	1,979	5.3	-4.5	27	5.7	31	1,907	0	-6.1	28	7.8																													
750	31	2,486	-1.3	-9.9	27	9.9	31	2,506	-1.7	-6.2	31	10.9	31	2,544	8.7	-5.7	25	7	31	2,588	1.8	-11.2	28	6.6	31	2,423	-2.0	-10.8	28	7.7																													
700	31	2,953	-3.9	-13.2	26	10.4	31	3,036	-1.7	-10.9	27	10.7	4.7												31	2,744	-4.7	-18.7	28	3.5																													
650	31	3,575	-7.1	-16.9	26	11.1	31	3,628	-5.8	-15.5	30	13.4	31	3,707	7	-12.9	28	6.0	11	3,682	-4.9	-14.9	29	10.1	31	3,444	-8.0	-17.9	29	9.2																													
600	31	4,195	-10.6	-20.5	27	12.4	31	4,243	-9.6	-19.7	30	14.7	31	4,345	-3.7	-16.3	29	7.5	11	4,328	-8.3	-20.0	29	12.3	31	4,166	-11.6	-22.1	29	9.8																													
550	31	4,860	-14.5	-27.3	27	14.6	31	4,910	-13.7	-24.1	30	16.8	31	5,021	-7.7	-21.7	28	9.2	30	4,935	-12.7	-24.5	29	13.0	31	4,829	-11.3	-27.5	29	11.9																													
500	31	5,576	-18.9	-32.6	27	16.6	31	5,628	-18.5	-28.1	30	17.3	31	5,762	-12.0	-26.4	28	11.6	29	5,688	-17.8	-28.6	29	13.7	31	5,483	-19.7	-30.7	29	13.9																													
450	31	6,382	-28.3	-37.3	27	17.7	31	6,407	-23.6	-34.3	30	19.5	31	6,460	-17.8	-31.1	28	12.5	29	6,343	-22.7	-33.2	29	15.1	31	6,317	-24.9	-35.1	29	15.6																													
400	31	7,271	-30.2	-41.2	27	18.8	31	7,258	-29.5	-39.6	30	20.7	31	7,430	-24.2	-35.5	28	13.8	29	7,292	-28.7	-37.3	29	19.1	31	7,163	-30.8	-41.2	29	17.5																													
350	31	8,194	-36.8	-46.3	27	21.9	31	8,208	-31.8	-44.4	30	21.6	31	8,393	-31.4	-41.6	28	15.1	29	8,257	-36.1	-43.3	29	21.8	31	8,105	-37.1	-44.8	29	19.8																													
300	31	9,190	-43.3	-52.5	27	23.7	31	9,206	-43.4		30	22.2	31	9,401	-39.2	-48.9	28	17.2	27	9,276	-44.1		29	21.3	31	9,150	-43.3		29	22.0																													
250	31	10,403	-48.4		28	23.4	31	10,480	-49.5		30	25.7	31	10,692	-47.5		28	18.2	27	10,481	-50.6		29	21.4	31	10,175	-48.9		29	23.4																													
200	31	11,888	-52.1		28	24.2	31	11,979	-53.7		30	26.6	31	12,140	-54.6		28	18.4	27	11,919	-55.0		29	21.2	31	11,613	-53.1		29	23.2																													
150	31	12,710	-53.1		28	22.2	31	12,763	-54.8		30	23.7	31	12,900	-57.4		28	18.1	27	12,771	-56.0		29	21.2	31	12,682	-54.3		29	23.5																													
100	31	13,899	-53.1		28	20.6	31	13,745	-59.6		30	21.5	31	13,955	-61.1		28	16.4	27	13,776	-57.5		29	20.8	31	13,668	-55.1		29	20.1																													
75	31	14,858	-57.4		28	18.2	31	14,826	-58.3		30	19.6	31	15,382	-61.4		28	14.1	27	14,902	-59.4		29	17.3	31	14,823	-58.2		29	15.7																													
50	31	16,211	-59.1		28	13.4	31	16,245	-59.6		30	14.2	31	16,441	-66.5		28	11.0	26	16,294	-60.5		29	13.6	31	16,223	-59.3		28	12.4																													
25	31	17,660	-58.8		27	10.7	31	17,693	-59.4		30	10.9	31	17,793	-65.2		28	8.4	26	17,685	-60.0		29	10.2	31	17,620	-59.5		29	10.2																													
0	31	18,520	-58.4		27	8.3	31	18,571	-59.4		30	8.2	31	18,611	-71.1		28	5.0	25	18,516	-60.0		29	6.7	31	18,457	-59.0		29	8.2																													
60	31	19,470	-58.4		26	7.6	31	19,502	-59.2		30	6.6	30	19,556	-62.6		28	2.6	25	19,462	-58.7		29	5.4	31	19,372	-58.8		29	7.3																													
40	31	20,618	-57.3		27	6.6	31	20,652	-57.8		31	6.6	31	20,658	-64.4		31	2.9	25	20,628	-58.7		29	2.9	31	20,570	-58.2		29	6.9																													
20	31	22,034	-57.0		27	6.7	28	22,764	-57.8		34	3.7	28	22,995	-64.7		31	2.1	25	22,811	-58.5		31	2.9	31	21,978	-51.6		29	6.9																													
0	31	23,861	-55.4		26	6.7	27	23,880	-57.1		35	1.9	28	23,977	-55.9		30	2.4	25	23,898	-57.9		34	3.0	31	23,801	-56.3		29	5.6																													
25	25	25,378	-54.4		29	6.5	24	25,042	-57.1		34	3.1	26	25,071	-54.7		31	3.0	25	24,996	-57.2		34	3.1	31	24,908	-55.3		29	5.8																													
20	26	26,465	-52.6		26	7.9	26	26,464	-52.6		35	3.7	27	26,861	-52.5		28	6.7	26	26,425	-55.7		01	3.0	31	26,268	-53.6		29	7.0																													
15	21	28,116	-50.9		26	9.4	19	28,116	-51.4		32	3.7	19	28,171	-50.2		28	11.1	7	28,798	-52.2		7	3.8	23	28,798	-53.6		28	9.5																													
10	8	31,623	-50.9		15	13.1	21	31,621	-49.0		30	12	14	31,691	-48.5		26	11.1	7	31,691	-52.2		26	10	30,911	-49.0		27	14.2																														
7																																																											



## Average monthly values

OCTOBER 1979

[illegible]

LAWRENCE, WY 844 MB					LIMUL KAJAI, HI 1012 MB					LITTLE ROCK, AR 994 MB					LONGVIEW, TX 1000 MB					MCGRATH, AK 987 MB										
1000	21	1,697	5.7	-2.4	24	1.8	21	56	24.9	21.6	05	2.5	31	79	14.0	9.7	24	1.4	30	124	15.4	12.1	19	1.3	31	103	-1.1	-2.3	28	+2
950							31	197	20.4	20.0	06	3.1							16	155	15.4	10.3	16							
900							31	585	20.9	19.1	07	4.3	31	560	16.1	5.7	25	4.8	30	565	17.7	7.4	22	5.5	31	413	1.0	-2.3	11	1.6
850							31	1,002	18.1	15.6	08	4.6	31	1,018	14.6	2.4	26	5.8	30	1,027	16.7	2.5	23	4.8	31	847	-2.2	-4.4	14	3.3
800							31	1,541	15.7	12.6	08	4.1	31	1,508	12.2	-7	27	6.3	30	1,512	14.2	-0	24	3.9	31	1,303	-2.1	-6.4	16	3.4
750	31	1,496	-5.0	-4.5	24	1.4	31	2,254	12.7	5.6	09	3.6	31	2,006	9.9	-3.0	28	7.0	30	2,022	12.3	-3.2	26	4.7	31	1,783	-4.4	-10.2	17	3.7
700	31	2,125	-5.0	-7.1	18	2.7	31	3,157	10.7	-1.5	08	3.2	31	2,539	7.2	-6.0	28	7.8	30	2,561	9.9	-6.2	27	5.7	31	2,289	-7.5	-13.7	17	4.3
650	31	1,608	-1.9	-1.0	19	3.0	31	3,173	9.4	-7.7	09	2.6	31	1,910	4.4	-9.1	27	8.0	30	1,927	11.1	-10.9	25	6.2	31	1,721	-1.7	-17.0	18	5.0
600	31	1,686	-1.7	-13.8	20	8.3	31	1,762	5.8	-9.4	08	2.7	31	3,302	-7	-13.0	29	10.4	30	3,335	2.9	-14.8	29	8.0	31	3,169	-14.4	-20.9	18	5.9
550	31	4,215	-1.7	-1.0	30	11.1	31	4,433	1.8	-12.3	09	2.5	31	4,342	-3.1	-17.7	29	11.9	30	4,378	-9	-18.4	29	9.5	31	3,991	-18.3	-26.1	18	5.7
500	31	4,992	-8.7	-22.6	1	12.4	31	5,129	-9.2	-16.0	06	2.2	31	5,026	-7.0	-21.5	29	13.5	30	5,067	-5.3	-22.5	29	10.4	31	4,635	-22.8	-30.7	18	7.0
450	31	5,782	-14.2	-26.4	29	13.0	31	5,880	-7.2	-21.5	08	1.8	31	5,763	-12.0	-26.4	28	15.1	30	5,808	-10.5	-27.9	29	11.3	31	5,327	-17.8	-35.2	18	8.7
400	31	6,512	-19.9	-31.2	29	15.2	31	6,696	-12.0	-26.8	07	1.7	31	6,561	-17.6	-32.3	29	16.0	30	6,610	-15.9	-31.3	29	12.6	31	6,076	-33.2	-40.4	18	9.7
350	31	7,185	-36.2	-39.2	29	15.4	31	7,585	-18.4	-31.7	03	1.2	31	7,431	-24.1	-37.5	29	16.3	30	7,486	-22.7	-38.1	29	14.4	31	6,894	-39.3	-43.5	19	11.1
300	31	8,019	-41.3	-43.8	29	16.0	31	8,419	-20.4	-34.3	04	1.0	31	8,330	-25.8	-40.8	28	17.0	30	8,385	-24.1	-41.6	28	16.1	31	7,913	-43.8	-48.6	19	11.8
250	31	9,369	-41.3	-49.8	21	21.2	29	9,662	-34.3	-46.4	27	2.7	31	9,464	-39.6	-51.3	29	18.6	30	9,531	-38.3	-51.0	29	17.8	31	8,608	-52.0	-57.0	19	11.1
200	31	10,676	-49.9	-52.4	20	24.3	29	10,912	-43.9	-50.0	27	2.2	31	10,687	-48.5	-50.0	29	19.9	30	10,762	-47.0	-50.0	29	19.0	31	9,982	-53.4	-58.4	20	9.8
150	31	12,045	-55.4	-58.4	20	22.0	29	10,177	-53.7	-56.0	26	8.8	31	12,131	-55.6	-56.0	29	22.6	30	12,209	-56.2	-56.0	29	19.3	31	11,429	-50.3	-55.0	21	9.6
100	31	12,895	-57.0	-60.0	25	22.3	26	13,324	-58.4	-59.0	29	7.9	31	12,975	-58.8	-58.8	28	22.6	30	13,049	-60.0	-60.0	28	19.8	31	12,303	-49.6	-51.0	21	8.7
50	31	13,664	-60.1	-61.0	21	21.1	26	14,179	-64.5	-64.5	26	6.4	31	13,935	-62.7	-62.7	29	19.9	30	14,003	-64.2	-64.2	28	17.2	31	13,313	-49.6	-51.0	21	9.2
0	31	14,595	-62.4	-62.4	25	18.4	26	15,278	-70.7	-70.7	31	2.9	31	15,050	-65.8	-65.8	29	16.8	30	15,109	-67.4	-67.4	28	15.8	31	14,506	-50.0	-50.0	22	10.0
	31	16,385	-64.5	-64.5	25	13.7	25	16,589	-78.7	-78.7	04	1.3	30	16,398	-67.5	-67.5	29	13.0	30	16,446	-69.8	-69.8	28	13.6	30	15,861	-50.3	-50.3	23	9.9
	31	17,721	-63.4	-63.4	28	17.8	28	17,886	-78.7	-78.7	04	1.3	30	17,779	-65.6	-65.6	28	13.0	30	17,788	-67.4	-67.4	28	13.0	30	17,416	-50.0	-50.0	23	9.7
	31	18,564	-62.1	-62.1	31	5.7	28	18,774	-75.0	-75.0	08	5.9	30	18,561	-64.3	-64.3	28	5.9	30	18,591	-65.2	-65.2	29	4.2	30	18,666	-50.9	-50.9	23	9.9
	31	19,507	-61.8	-61.8	37	3.6	28	19,599	-66.9	-66.9	08	7.8	30	19,511	-61.6	-61.6	28	4.6	30	19,537	-62.6	-62.6	27	2.8	30	19,289	-51.1	-51.1	23	10.1
	31	20,044	-60.5	-60.5	18	2.6	28	20,709	-63.9	-63.9	09	9.1	30	20,666	-59.5	-59.5	28	3.7	30	20,668	-60.1	-60.1	27	2.5	29	20,470	-51.6	-51.6	24	10.0
	31	22,076	-59.1	-59.1	24	1.8	27	22,099	-60.2	-60.2	09	11.1	30	22,050	-57.1	-57.1	27	3.7	30	22,068	-57.8	-57.8	26	1.6	28	21,919	-51.9	-51.9	24	9.6
	31	23,553	-57.2	-57.2	01	2.8	23	23,908	-54.6	-54.6	09	13.7	30	23,882	-54.6	-54.6	28	3.9	29	23,898	-54.6	-54.6	31	5	27	23,780	-51.8	-51.8	25	9.3
	31	25,010	-59.5	-59.5	34	2.0	26	25,006	-58.1	-58.1	09	14.5	30	25,083	-53.4	-53.4	29	4.1	29	25,069	-53.2	-53.2	35	9	27	24,862	-51.8	-51.8	25	9.3
	31	26,477	-59.4	-59.4	15	2.5	24	26,511	-55.1	-55.1	09	16.5	30	26,516	-51.6	-51.6	28	4.6	28	26,516	-51.6	-51.6	35	19	27	26,266	-51.8	-51.8	26	8.9
	31	28,293	-59.5	-59.5	08	5.5	24	28,188	-49.1	-49.1	09	12.6	28	28,375	-46.7	-46.7	26	2.8	27	28,389	-49.2	-49.2	35	14	26	28,265	-53.3	-53.3	26	8.9
	31	30,942	-44.4	-44.4	17	31	31,068	-45.2	-45.2	09	7.7	18	31,058	-44.9	-44.9	27	5.1	18	31,078	-44.8	-44.8	31	2.2	25	30,887	-52.0	-52.0	28	10.0	
							5	32,571	-40.2	-40.2														13	33,226	-50.0	-50.0	27	11.1	

[illegible]



# RAWINSONDE DATA

Average monthly values

STATION 1977

NASHVILLE, TN 963 MB												NORTH PLATE, NE 916 MB												OAKLAND, CA 1015 MB											
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s											
5FC 31	436	11.4	6.1	18	1.9	31	180	16.8	8.6	16	1.1	31	447	5.3	1.7	34	2.0	31	119	14.7	12.0	25	1.6	31	119	14.7	12.0	25	1.6						
1000 31	509	14.1	5.1	121	2.5	31	180	16.8	8.6	16	1.1	31	447	5.3	1.7	34	2.0	31	119	14.7	12.0	25	1.6	31	119	14.7	12.0	25	1.6						
950 31	549	14.1	5.1	121	2.5	31	180	16.8	8.6	16	1.1	31	447	5.3	1.7	34	2.0	31	119	14.7	12.0	25	1.6	31	119	14.7	12.0	25	1.6						
900 31	1,006	13.5	2.5	24	6.4	31	1,019	10.7	3.4	25	5.9	31	994	9.5	2.7	32	7.8	31	563	14.2	5.9	26	1.9	31	563	14.2	5.9	26	1.9						
850 31	1,486	11.5	1.2	27	8.2	31	1,484	8.4	1.8	27	7.3	31	1,289	-5.1	-6.7	15	1.5	31	1,470	10.7	-1.9	35	6.5	31	1,470	10.7	-1.9	35	6.5						
800 31	1,991	9.2	-2.2	28	9.3	31	1,995	6.5	-2.7	28	8.4	31	1,773	-6.7	-8.3	14	1.3	31	1,973	8.7	-6.9	34	7.1	31	1,973	8.7	-6.9	34	7.1						
750 31	2,524	6.9	-6.7	28	10.4	31	2,528	4.2	-6.4	28	11.2	31	2,454	-6.6	-7.1	32	8.4	31	2,544	6.6	-9.7	24	3.4	31	2,544	6.6	-9.7	24	3.4						
700 31	3,067	3.5	-9.4	26	11.2	31	3,064	3.0	-9.2	26	11.6	31	3,064	-12.9	-13.3	16	1.7	31	3,064	2.5	-9.7	32	10.2	31	3,064	2.5	-9.7	32	10.2						
650 31	3,606	-7	-14.0	29	12.7	31	3,679	-7.9	-13.4	29	12.6	31	3,659	-1.1	-1.7	31	12.1	31	3,659	-1.1	-1.7	31	12.1	31	3,659	-1.1	-1.7	31	12.1						
600 31	4,324	-3.4	-16.2	29	13.7	31	4,314	-4.5	-16.4	29	14.6	31	4,293	-5.1	-5.6	31	14.5	31	4,293	-5.1	-5.6	31	14.5	31	4,293	-5.1	-5.6	31	14.5						
550 31	5,006	-7.8	-20.6	29	14.7	31	4,994	-8.4	-21.4	29	15.9	31	4,972	-9.1	-9.6	31	16.3	31	4,972	-9.1	-9.6	31	16.3	31	4,972	-9.1	-9.6	31	16.3						
500 31	5,741	-12.6	-26.5	29	15.4	31	5,726	-13.5	-27.1	29	17.1	31	5,694	-13.4	-13.9	31	17.3	31	5,694	-13.4	-13.9	31	17.3	31	5,694	-13.4	-13.9	31	17.3						
450 31	6,537	-18.0	-32.5	28	16.3	31	6,520	-18.7	-33.3	28	19.4	31	6,496	-19.4	-19.9	31	19.8	31	6,496	-19.4	-19.9	31	19.8	31	6,496	-19.4	-19.9	31	19.8						
400 31	7,407	-24.4	-37.2	28	17.4	31	7,386	-25.6	-38.7	27	21.7	31	7,355	-26.4	-26.9	31	22.1	31	7,355	-26.4	-26.9	31	22.1	31	7,355	-26.4	-26.9	31	22.1						
350 31	8,366	-31.7	-43.9	28	19.2	31	8,344	-32.5	-44.7	26	23.6	31	8,313	-32.6	-33.1	31	24.0	31	8,313	-32.6	-33.1	31	24.0	31	8,313	-32.6	-33.1	31	24.0						
300 31	9,437	-39.6	-50.6	29	21.1	31	9,411	-39.9	-51.9	26	25.3	31	9,380	-40.6	-41.1	31	25.7	31	9,380	-40.6	-41.1	31	25.7	31	9,380	-40.6	-41.1	31	25.7						
250 31	10,661	-48.3	-57.1	29	21.7	31	10,636	-47.7	-58.5	26	29.5	31	10,605	-48.4	-48.9	31	29.9	31	10,605	-48.4	-48.9	31	29.9	31	10,605	-48.4	-48.9	31	29.9						
200 31	12,104	-55.5	-63.1	29	23.6	31	12,078	-54.5	-64.5	26	33.9	31	12,047	-55.2	-55.7	31	34.3	31	12,047	-55.2	-55.7	31	34.3	31	12,047	-55.2	-55.7	31	34.3						
175 31	12,951	-58.1	-65.1	29	26.4	31	12,925	-57.1	-66.1	26	38.1	31	12,894	-57.8	-58.3	31	38.5	31	12,894	-57.8	-58.3	31	38.5	31	12,894	-57.8	-58.3	31	38.5						
150 31	13,916	-61.1	-67.1	29	28.6	31	13,890	-60.1	-68.1	26	40.8	31	13,859	-60.8	-61.3	31	41.2	31	13,859	-60.8	-61.3	31	41.2	31	13,859	-60.8	-61.3	31	41.2						
125 31	15,005	-64.6	-69.1	29	31.6	31	14,979	-63.2	-70.2	26	45.0	31	14,948	-63.9	-64.4	31	45.4	31	14,948	-63.9	-64.4	31	45.4	31	14,948	-63.9	-64.4	31	45.4						
100 31	16,401	-66.2	-70.1	29	34.6	31	16,375	-65.1	-71.1	26	48.0	31	16,344	-65.8	-66.3	31	48.4	31	16,344	-65.8	-66.3	31	48.4	31	16,344	-65.8	-66.3	31	48.4						
75 31	17,756	-64.7	-68.1	29	37.6	31	17,730	-63.6	-69.6	26	51.0	31	17,699	-64.3	-64.8	31	51.4	31	17,699	-64.3	-64.8	31	51.4	31	17,699	-64.3	-64.8	31	51.4						
50 31	18,574	-63.2	-66.1	29	40.6	31	18,548	-62.2	-67.6	26	54.0	31	18,517	-62.9	-63.4	31	54.4	31	18,517	-62.9	-63.4	31	54.4	31	18,517	-62.9	-63.4	31	54.4						
25 31	19,526	-61.6	-64.6	29	43.6	31	19,500	-60.6	-65.6	26	57.0	31	19,469	-61.3	-61.8	31	57.4	31	19,469	-61.3	-61.8	31	57.4	31	19,469	-61.3	-61.8	31	57.4						
0 31	20,641	-59.9	-62.9	29	46.6	31	20,615	-58.9	-63.9	26	60.0	31	20,584	-59.6	-60.1	31	60.4	31	20,584	-59.6	-60.1	31	60.4	31	20,584	-59.6	-60.1	31	60.4						
40 31	22,061	-57.9	-60.9	28	49.6	31	22,035	-57.0	-62.0	26	63.0	31	22,004	-57.7	-58.2	31	63.4	31	22,004	-57.7	-58.2	31	63.4	31	22,004	-57.7	-58.2	31	63.4						
30 31	23,887	-55.2	-58.2	27	52.6	31	23,861	-54.2	-59.2	26	66.0	31	23,830	-54.9	-55.4	31	66.4	31	23,830	-54.9	-55.4	31	66.4	31	23,830	-54.9	-55.4	31	66.4						
25 31	25,055	-53.5	-56.5	27	55.6	31	25,029	-52.5	-57.5	26	69.0	31	24,998	-53.2	-53.7	31	69.4	31	24,998	-53.2	-53.7	31	69.4	31	24,998	-53.2	-53.7	31	69.4						
20 31	26,498	-51.7	-54.7	27	58.6	31	26,472	-50.7	-55.7	26	72.0	31	26,441	-51.4	-51.9	31	72.4	31	26,441	-51.4	-51.9	31	72.4	31	26,441	-51.4	-51.9	31	72.4						
15 31	28,170	-49.6	-52.6	27	61.6	31	28,144	-48.6	-53.6	26	75.0	31	28,113	-49.3	-49.8	31	75.4	31	28,113	-49.3	-49.8	31	75.4	31	28,113	-49.3	-49.8	31	75.4						
10 31	31,056	-45.6	-48.6	27	64.6	31	31,030	-44.6	-49.6	26	78.0	31	31,000	-45.3	-45.8	31	78.4	31	31,000	-45.3	-45.8	31	78.4	31	31,000	-45.3	-45.8	31	78.4						
7 10	33,428	-43.9	-46.9	27	67.6	31	33,402	-42.9	-47.9	26	81.0	31	33,371	-43.6	-44.1	31	81.4	31	33,371	-43.6	-44.1	31	81.4	31	33,371	-43.6	-44.1	31	81.4						

OMAHA, NE 955 MB												PAGO PAGO, AMERICAN SAMOA 1012 MB												PEORIA, IL 989 MB												PITTSBURGH, PA 973 MB												PONAPE, CAROLINE IS. 1005 MB											
Standard pressure surface mb	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s	No of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed m p s																													
5FC 31	403	7.7	3.4	33	4.8	30	5	28.7	23.6	10	4.2	31	206	7.6	5.0	19	1.2	31	754	8.3	5.5	22	2.0	31	39	24.1	24.8	98	1.9																														
1000 31	534	9.4	1.7	32	1.9	30	562	22.5	2.7	10	5.3	31	537	10.6	3.1	23	3.4	31	551	9.1	5.5	24	4.9	31	535	24.3	21.7	10	2.3																														
950 31	978	10.0	1.5	33	2.4	30	1,031	15.3	16.6	09	4.6	31	985	8.5	7.26	5.4	5.1	31	998	7.3	2.9	26	8.1	31	1,004	21.6	18.3	10	2.4																														
900 31	1,452	8.4	-2.9	31	6.6	30	1,522	16.7	12.4	09	4.0	31	1,457	6.7	-1.3	27	7.5	31	1,467	5.0	-1.7	27	8.8	31	1,503	14.0	15.1	11	2.5																														
850 31	1,952	6.4	-6.8	31	7.8	30	2,024	14.7	9.1	08	2.4	31	1,953	4.5	-5.5	29	9.2	31	1,960	2.2	-3.7	27	9.6	31	2,024	16.4	11.1	12	1.9																														
800 31	2,479	3.9	-9.4	31	7.7	30	2,581	12.5	2.7	01	2.0	31	2,476	1.5	-8.8	24	9.9	31	2,477	-1.1	-10.2	27	11.3	31	2,471	15.6	7.7	11	2.1																														
750 31	3,037	1.2	-13.2	30	9.4	31	3,159	3.7	-3.0	05	1.5	31	3,029	-12.0	-12.0	19	14.7	31	3,027	-2.5	-11.3	29	11.1	31	3,159	14.0	4.6	11	2.8																														
700 31	3,603	-5.9	-18.0	30	11.1	30	3,721	6.1	-5.9	01	1.7	31	3,617	4.2	-16.7	29	13.5	30	3,615	-5.5	-15.6	26	12.4	31	3,765	7.1	-5.0	10	3.1																														
650 31	4,262	-5.7	-17.6	30	13.0	30	4,423	2.4	-9.0	26	2.6	31	4,244	-7.7	-19.6	24	14.1																																										

# RAWINSONDE DATA

Average monthly values

OCTOBER 1979

SALT LAKE CITY, UT 993 MB											SALT LAKE CITY, UT 872 MB											SAN DIEGO, CA 1000 MB											SAN JUAN, P. R. 1013 MB										
Standard pressure surface mb.		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind		No of observations		Dynamic height meters		Temperature °C		Dew Point °C		Resultant Wind			
1000	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1					
900	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
800	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
700	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
600	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
500	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
400	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
300	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
200	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
100	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				
0	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	31	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1				

SAULT STE MARIE, MI 949 MB										SPOKANE, WA 912 MB										TAMPA BAY, FL 1014 MB										TOPEKA, KS 981 MB										TRUK, CAROLINE IS. 1010 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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TUCSON, AZ 949 MB										VANDENBERG AFB, CA 1005 MB										VICTORIA, TX 1010 MB										WAKE IS., PACIFIC AREA 1014 MB										WALLOPS ISLAND, VA NASA 1017 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
1000	11	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	



## Average monthly values

1956 - 1975

- 21 -



# SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

OCTOBER 1979

MAUNA LOA OBSERVATORY, HI										TUCSON, AZ									
Sun's zenith distance										Sun's zenith distance									
Date	A M				*	P M				Date	A M				*	P M			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
	Air mass								Air mass										
	3.34	2.66	2.01	1.34	*	1.34	2.01	2.67	3.34		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64
11-----	1.07	1.16	1.26	1.37	-----	-----	-----	-----	-----	3-----	-----	-----	-----	-----	1.22	-----	-----	-----	-----
12-----	1.15	1.21	1.33	1.43	-----	-----	-----	-----	-----	4-----	.84	.94	1.07	1.24	1.38	1.19	1.01	.86	.75
13-----	1.21	1.28	1.38	1.48	-----	-----	-----	-----	-----	5-----	.80	.92	1.05	1.21	1.34	1.13	.97	.87	.78
14-----	1.16	1.23	1.35	1.45	-----	-----	-----	-----	-----	6-----	.82	-----	1.04	-----	1.32	1.20	-----	-----	-----
15-----	1.16	1.24	1.34	1.46	1.58	-----	-----	-----	-----	7-----	-----	-----	-----	-----	-----	-----	1.03	.89	.80
16-----	1.17	1.24	1.33	1.46	1.57	-----	-----	-----	-----	8-----	.76	.87	.99	1.16	1.34	1.14	.98	.89	.76
17-----	1.20	1.29	1.37	1.51	1.59	-----	-----	-----	-----	9-----	.85	.96	-----	1.27	1.42	-----	1.10	-----	-----
18-----	1.22	1.31	1.39	1.50	1.55	1.47	1.36	1.28	1.20	10-----	.85	.95	1.10	1.27	1.39	1.26	1.07	.94	.85
19-----	1.18	1.27	1.35	1.47	1.58	1.48	1.38	1.30	1.21	11-----	.97	1.07	1.18	1.33	1.45	1.32	1.16	1.04	.92
20-----	1.20	1.28	1.37	1.48	1.56	1.44	1.34	1.26	1.19	12-----	.88	1.00	1.13	1.30	-----	1.26	1.07	.93	.82
21-----	1.14	1.22	1.34	1.43	-----	-----	-----	-----	-----	13-----	.86	.99	1.09	1.25	1.43	-----	1.06	.92	.82
Average	1.17	1.25	1.35	1.46	1.57	1.46	1.36	1.28	1.20	14-----	.87	-----	-----	1.27	1.44	1.28	1.09	.96	.86
										15-----	-----	-----	-----	1.26	1.40	1.28	1.15	-----	.91
										16-----	.96	1.05	1.16	1.31	-----	1.26	1.07	.99	.90
										17-----	.92	1.02	1.14	1.30	1.40	1.27	1.12	1.01	.88
										18-----	.97	1.06	1.16	1.32	1.43	1.30	1.14	1.01	-----
										19-----	.97	1.06	1.21	1.34	1.46	-----	1.21	1.08	.97
										20-----	1.02	1.12	1.24	1.38	-----	-----	-----	1.03	-----
										21-----	.99	1.09	1.20	1.34	1.48	1.33	1.12	1.04	.96
										22-----	.95	1.06	1.18	1.35	1.47	1.28	1.15	1.03	.95
										23-----	.91	1.00	1.13	1.32	1.44	1.30	1.04	.87	.75
										24-----	.91	1.01	1.15	1.31	1.46	1.29	1.15	1.00	.90
										25-----	.98	1.09	1.19	1.34	1.46	1.33	1.16	1.04	.95
										26-----	.84	.91	1.03	1.16	1.38	-----	1.07	.79	.63
										27-----	.94	1.04	1.17	1.35	1.48	1.32	1.17	1.01	.91
										28-----	.97	1.04	1.21	1.36	1.47	1.35	1.23	1.12	1.02
Average	.91	1.01	1.11	1.29	1.41	1.27	1.10	.97	.86										

## NET RADIATION

Net radiation in langleys per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys . .	16	- 57	-21	M	64.9	- 53	48	99	117	122	122	91	- 20	- 23	96	143	147	143	147	138	139	149	146	137	136	128	- 7	6	- 10	- 12	- 15	90

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

- + And also on an earlier date or dates.
- D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

- B Number of days maximum 21.1°C. or above for Alaskan Stations.
- Y Peak Gust.
- + And also on an earlier date or dates.
- U Indicates Urban site.
- R Indicates Rural site.
- Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

- 1 foot = 0.3048 meters
- °F. =  $\frac{9}{5} \times ^\circ\text{C} + 32$
- 1 inch = 25.4 millimeters
- 1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

- U Indicates Urban site.
- R Indicates Rural site.

## STORM SUMMARY:

- o Includes crop damage.
- C Crop damage.
- \* No occurrence of storms or unusual weather phenomena reported.
- @ Includes heavy sleet storm.
- # Freezing drizzle and freezing rain, commonly known as glaze.
- Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.
- † No Storm Data Report received for this State.
- ◇ Report Incomplete.
- † Storm damages are placed in categories varying from 1 to 9 as follows:
  - 1 Less than \$50
  - 2 \$50 to \$500
  - 3 \$500 to \$5,000
  - 4 \$5,000 to \$50,000
  - 5 \$50,000 to \$500,000
  - 6 \$500,000 to \$5 Million
  - 7 \$5 Million to \$50 Million
  - 8 \$50 Million to \$500 Million
  - 9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

- \* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.
- + Observations for these stations are scheduled at 0000 G.C.T.
- † Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

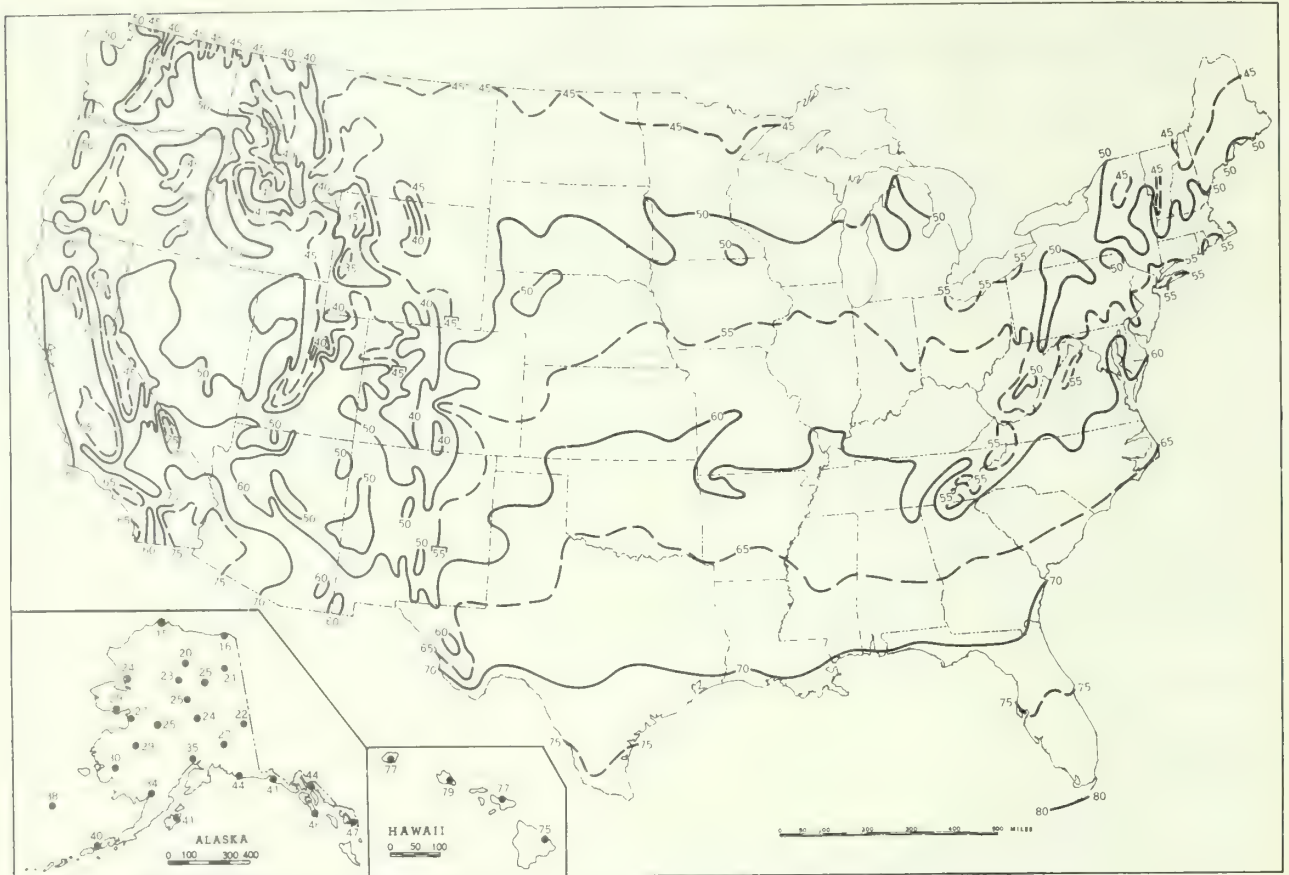
**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense haze-indeter-		minable
BN	Blowing Sand	GF	Ground Fog	K	Smoke	S	Sand
CI	Clouds	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

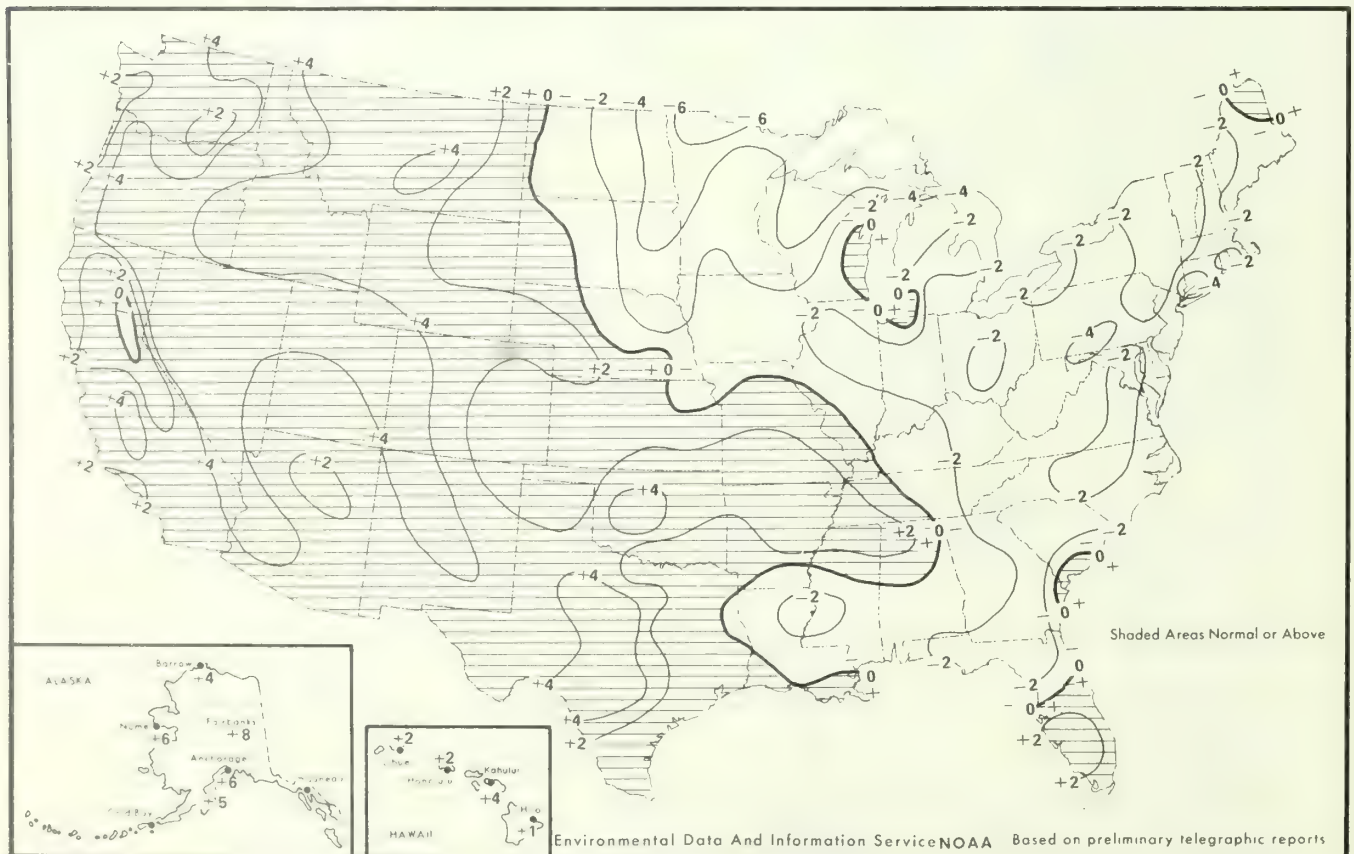
**NET RADIATION:** The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), October.



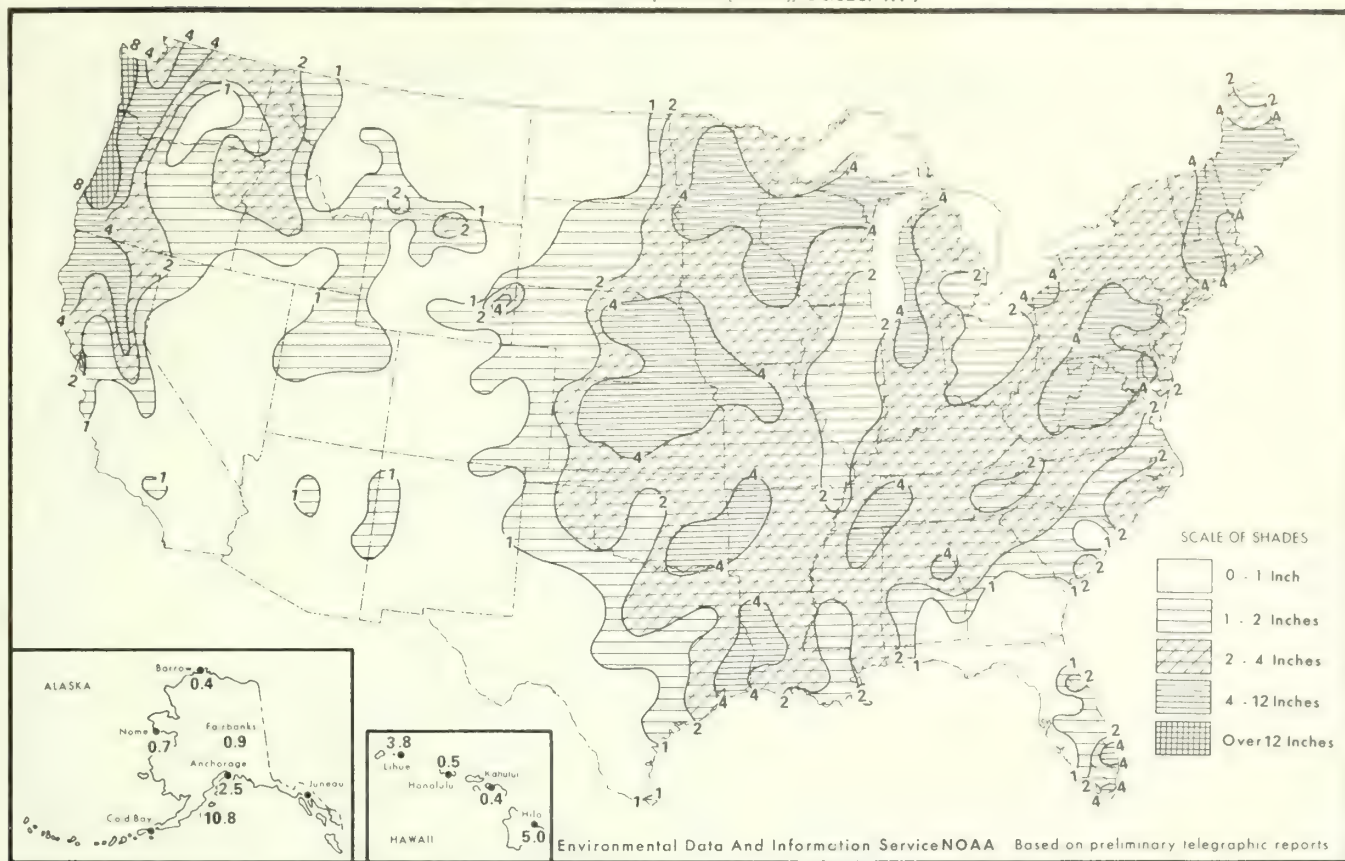
B. Temperature Departure from 30 - Year Mean (°F 1941-70), October 1979



Environmental Data And Information Service NOAA Based on preliminary telegraphic reports



Chart II. A. Total Precipitation (Inches), October 1979



B. Percentage of Normal Precipitation, October 1979

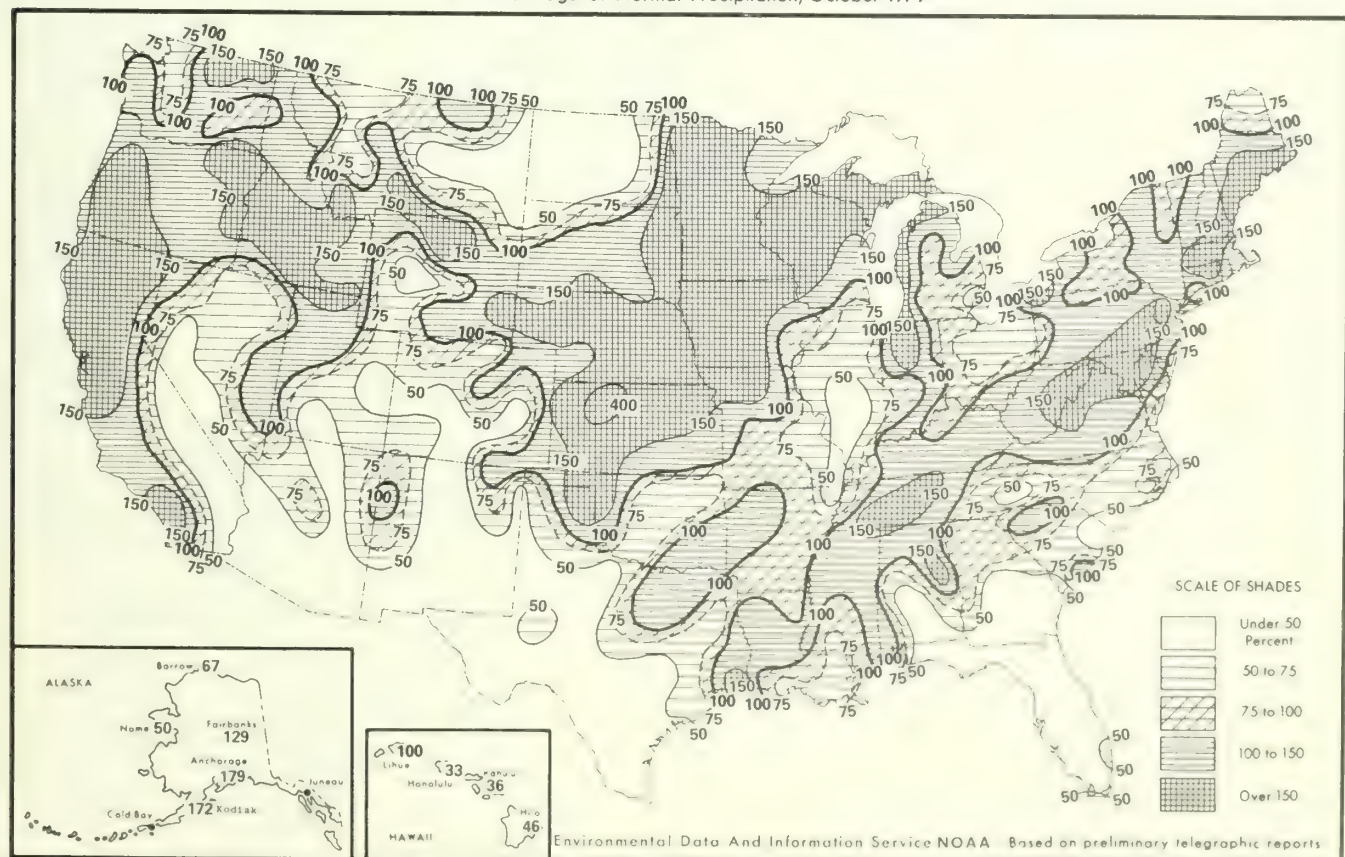


Chart III. Tracks of Centers of Anticyclones at Sea Level, October 1979

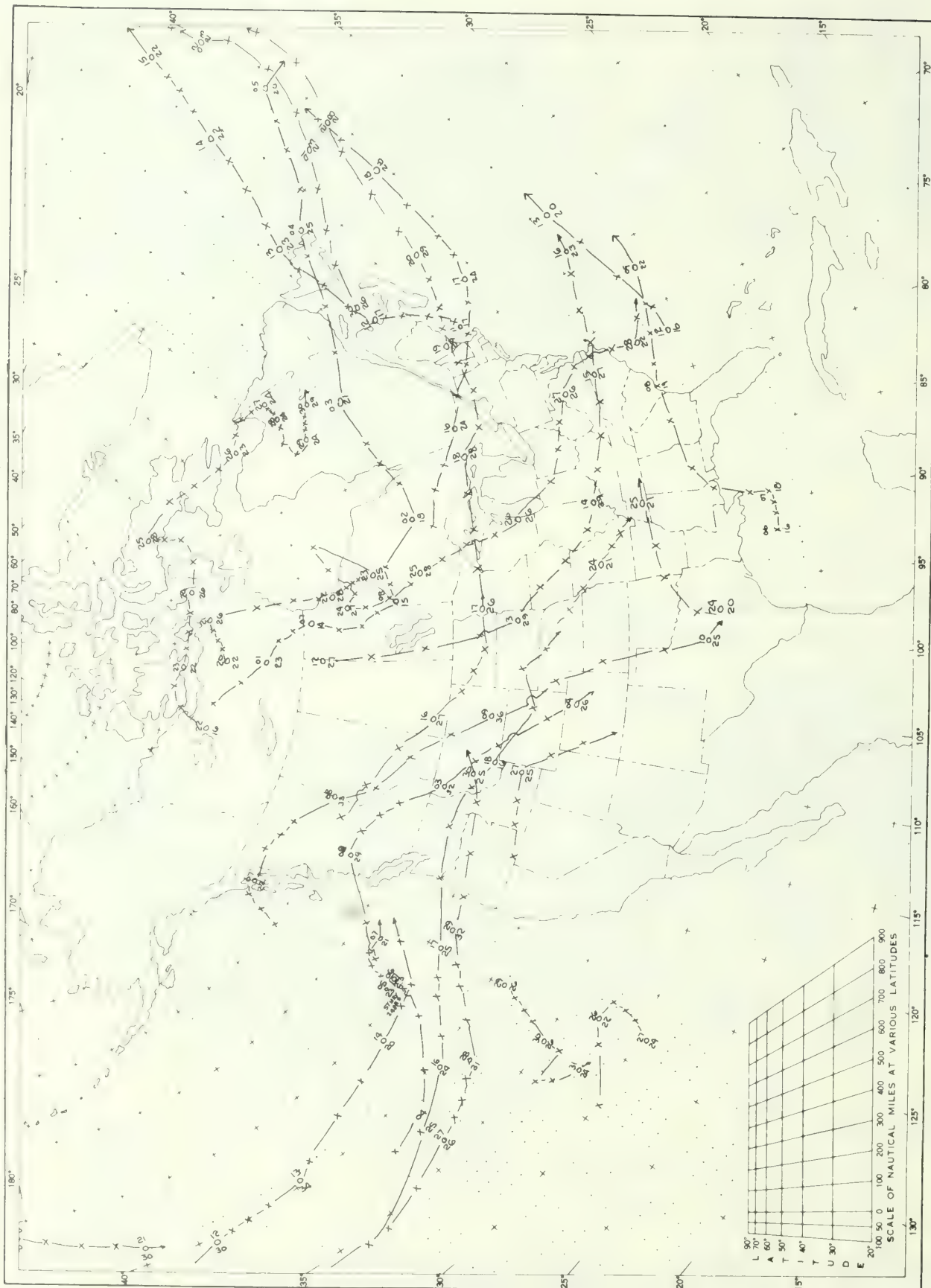
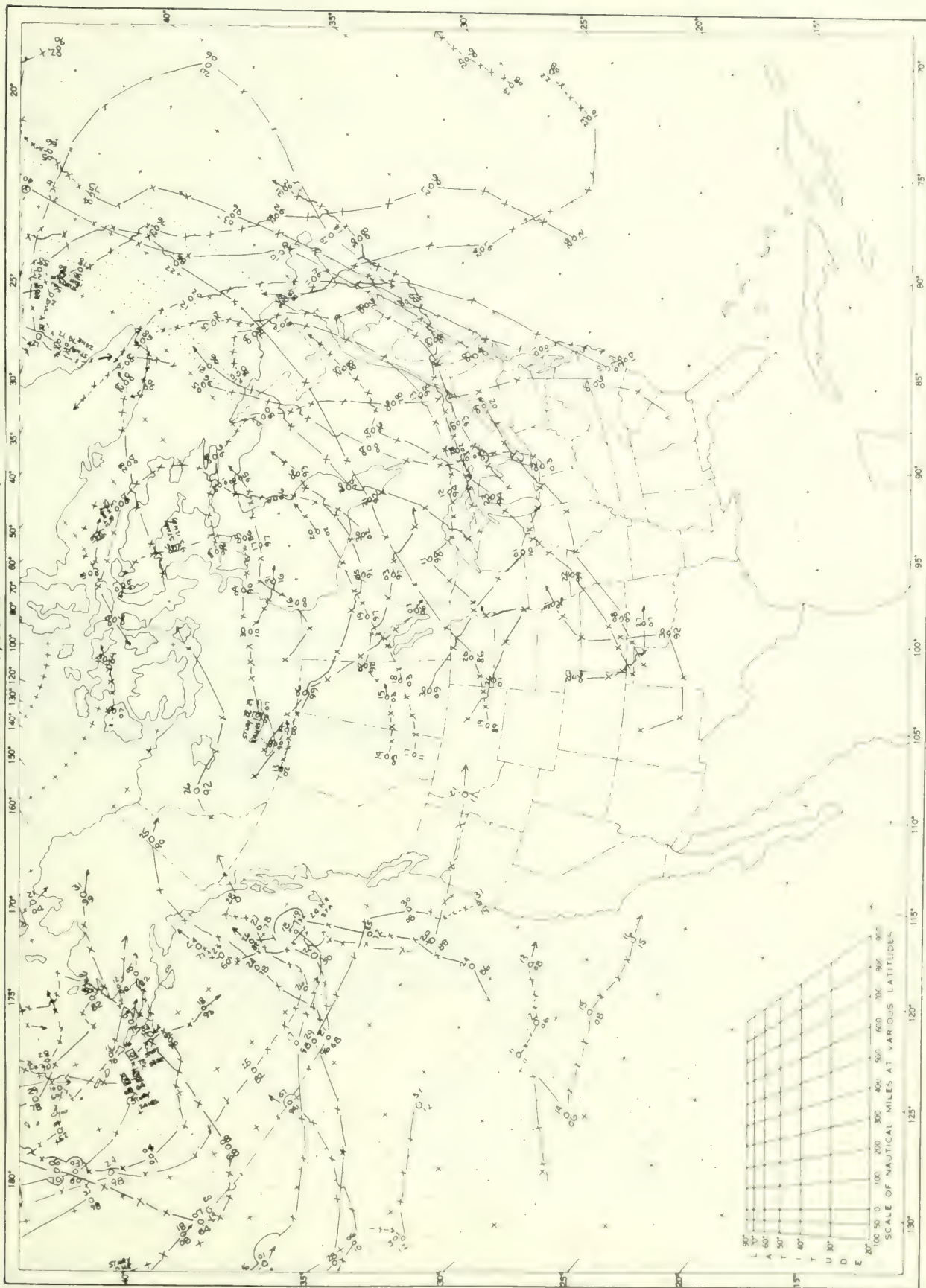




Chart IV. Tracks of Centers of Cyclones at Sea Level, October 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar  
 X's indicate intervening 6 hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track  
 indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included



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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

NOVEMBER 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** Early in November, a frontal system stagnated in the Southeast and spread heavy rain from the lower Mississippi River to the mid-Atlantic States. Again, later in the month, a low center formed in the Texas Panhandle and moved northeastward through the Great Lakes spreading rain from the lower Mississippi River through the New England Coast. Strong northerly winds blowing across the warmer Great Lakes dropped snow, heavy in the eastern portions, on the lee shores. Monthly average temperatures were warmer than normal in the eastern third of the Nation and colder in the West.

A vigorous frontal system edged through the eastern United States as November began at midweek. Rain, showers, and some thunderstorms moved with the front from the Mississippi River Valley to the East Coast. Snow fell in the northern Plains and great lakes area.

At the beginning of the week of the 5th - 11th, a cold airmass moved into the northern Plains, and by midweek, has pushed southward into Mexico and off the Atlantic Coast. A second, somewhat colder system developed and moved rapidly, but slowed as it neared the East Coast. Precipitation with the first system was confined to snow in the central Plains and Rockies and rainshowers in the Lakes area. Rain, with snow at higher elevations, covered the Pacific Northwest and continued eastward. As the second system slowed toward the end of the week, more widespread and heavier rain occurred. The central and lower sections of the Mississippi River were deluged with more than 3 inches of rain. The area from Mississippi to the mid-Atlantic States measured over 2 inches. The colder air averaged 12° below normal in the central Plains.

Precipitation was sparse over most of the Nation during the week of the 12th - 18th, but late in the week a weather system headed into the Northwest spreading rain, with snow at higher elevations, through most of California and the central and northern Plateau. Elsewhere, the remnants of an earlier weather system spread rain along the Coast from the mid-Atlantic States through New England. Light rain or snow fell in the Great Lakes area. Average temperatures for the week in the central and northern Plains and Southwest showed warmer than normal, and the rest of the Nation was near normal.

The week of the 19th - 25th was another week of heavy rain. An upper air low pressure system moved into the Southwest and slowly eastward. Warm, moist air from the Gulf of Mexico moved northward. Blizzard conditions occurred in the Colorado/Wyoming border area and moved eastward toward the Great Lakes. Areas of heavy rain fell from central Oklahoma into northern Missouri and from the lower Mississippi River Valley through the Ohio Valley. The Mississippi Delta was again deluged with 5 or more inches of rain. Temperatures rose sharply in the East. Weekly averages ranged as much as 15° warmer than normal. All of the area west of the Plains was cooler than normal.

During the last week, a large mass of very cold air dropped southward out of Canada and centered in Idaho. The center remained nearly stationary most of the week but elongated southeastward. The cold air reached from the Sierras in the West to the East Coast by the last of the month. Cold northerly winds blowing across the warmer Great Lakes produced snow squalls south of the Lakes. Much of the lee side of the eastern Lakes accumulated 2 to 3 feet of snow. More rain fell in the Pacific Northwest as November ended.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

November 1979

STATE	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest	Date	Station	Lowest	Date	Station	Greatest	Station	Least	
Alabama	4 Stations	°F		Guntersville	°F		Cuba	In.		In.	
Alaska	Etanell	60	15	Galbraith	-31	23	Little Port Walter	11.77	Beatrice 1 E	3.38	
Arizona	1 Station	89	18	3 Stations	-5	22+	Sunrise Mountain	16.13	Tok	.06	
Arkansas	1 Station	81	21+	6 Stations	11	30	Saint Charles	2.70	22 Stations	.00	
California	Normal FAA AP	88	15	2 Stations	-9	20	Standish-Hickey St Pk	9.04	Danville	1.05	
								14.80	25 Stations	.00	
Colorado	Wray	73	18	Antero Reservoir	-33	30	Independence Pass 5 SW	10.37	Dinosaur Natl Monument	.16	
Connecticut	Norwich Pub Util Pk	78	25	Falla Village	17	30	Round Pond	5.47	East Haven Saltonstall	2.30	
Delaware	1 Station	78	2	1 Station	23	30	Lewes 1 SW	5.29	Wilmington WSO AP	3.23	
Florida	Clevislon U S Eng	93	11	Smith Creek	17	30	Daytona Beach WSO AP	7.96	Flamingo Ranger Sta	.36	
Georgia	5 Stations	86	11+	Clayton 1 SSW	9	30	Clayton 1 SSW	11.70	Swainsboro	.78	
Hawaii	Hana Airport 355	94	3	Mauna Kea Obs 111.2	23	14	Puohokamda 2 343	40.60	3 Stations	.00	
Idaho	Council	66	8	Island Park Dam	-28	30	Moscow-Univ of Idaho	2.85	Mackay Ranger Station	.17	
Illinois	Cahokia	78	20	3 Stations	11	30+	2 Stations	7.77	Peru 2 W	1.54	
Indiana	4 Stations	78	1	Angola	13	13+	English	8.96	Pt Wayne Disposal Pl	3.13	
Iowa	Logan	72	17	2 Stations	5	13+	Buckeye	3.63	Knoxville	.85	
Kansas	Greeneburg	79	17	Tribune 1 W	7	30	Elgin	10.94	Elkhart 6 NNE	D .06	
Kentucky	2 Stations	90	21+	Vanceburg	19	30	Hopkinsville	9.95	Ashland	2.24	
Louisiana	4 Stations	86	9	Ashland 2 S	16	30	Marksville	8.66	Abbeville	2.80	
Maine	Lewiston	72	2	Squa Pan Dam	6	20	Ellsworth	5.91	Fort Kent	2.09	
Maryland	Lumberland	78	23	Frostburg 2	14	30	Salisbury FAA AP	6.50	Savage River Dam	1.76	
Massachusetts	Chester 2	74	24+	Chester 2	10	17	Chester 2	5.78	Nantuckett FAA AP	2.65	
Michigan	3 Stations	74	1	Herman	-11	11	Gull Lake Biol Sta	5.54	Kenton	1.42	
Minnesota	2 Stations	70	18+	2 Stations	-13	8	Albert Lea	3.41	Ortonville	.08	
Mississippi	Columbia	87	9	Charleston	12	30	Dancy	12.29	Vicksburg Military Pk	4.12	
Missouri	3 Stations	79	21+	Willow Springs RDO KUKU	7	30	Waco 2 E	7.24	Weldon Spring Wildlife Ar	1.19	
Montana	Grass Range	72	16	West Yellowstone	-27	28	2 Stations	1.69	7 Stations	T	
Nebraska	Neeshenbush	75	16	Crescent Lake Natl WLR	-7	27	Taylor	4.62	Gordon 3 W	.12	
Nevada	Sunrise Manr Las Vegas	78	15	Mountain City R S	-22	28	Deno	2.03	8 Stations	.00	
New Hampshire	2 Stations	71	3+	Mount Washington	-6	16	Mount Washington	5.97	Newport	2.30	
New Jersey	Hightstown 2 W	77	1	4 Stations	19	30	Greenwood Lake	5.55	Trenton WSO CI	2.60	
New Mexico	Carlsbad FAA AP	81	4	Chama	-10	28	Bloomfield 3 SE	2.29	14 Stations	.00	
New York	Watkins	74	25	Old Forge	7	16	Hooker 4 N	8.01	2 Stations	1.61	
North Carolina	Elizabethtown Lock 2	87	10	Grandfather Mountain	5	30	Lake Toxaway 2 SW	18.26	Wilmington WSO AP	2.01	
North Dakota	2 Stations	70	16	3 Stations	-10	10	Petersburg 2 N	1.47	9 Stations	T	
Ohio	Wallipolis	79	1	Chardon	12	30	Cincinnati-Fernbank	5.54	New Philadelphia 1 A	2.37	
Oklahoma	Waurika	83	19	2 Stations	8	30	Ponca City FAA AP	12.14	Goodwell Research Sta	.06	
Oregon	Gold Beach Ranger Sta	74	7	Minam 7 NE	-18	29	Port Jrford 0 E	15.79	Drewsey	.59	
Texas	Ponape WSO	93	30	Midway Sand Island	56	30	Truk Moeen I WSO AP	20.97	Wake Island WSO AP	3.09	
Pennsylvania	Morgantown	80	26	Warren	13	29	Erie WSO AP	5.84	Landisville 2 NW	1.83	
Puerto Rico	Lajas Substation	94	4	Adjuntas Substation	53	29	Pico Del Este	24.54	Puerto Real	1.49	
Rhode Island	Providence WSO AP	73	24	Kingston	22	30	Kingston	5.35	Block Island WSO AP	2.83	
South Carolina	Florence FAA AP	87	10	Caesars Head	11	30	Caesars Head	13.56	Aiken 4 NE	1.97	
South Dakota	Belle Fourche	73	16	2 Stations	-4	29+	Tyndall 1 N	2.99	2 Stations	.00	
Tennessee	Kingston Springs 2 NNE	80	21	Sevierville 1 SE	12	30	Dover 1 W	10.50	Newport 1 NW	3.45	
Texas	Zapata	95	7	Meritzon	6	30	Cypress	7.15	36 Stations	.00	
Utah	La Verkin	73	6	Woodruff	-30	30	Alta	7.02	2 Stations	.00	
Vermont	Dorset 1 S	72	23	Mount Mansfield	5	17+	Mount Mansfield	5.69	South Newbury	2.34	
Virginia	Norfolk WSO AP	83	10	2 Stations	10	30	Waverly	9.12	Luray 5 E	2.10	
Virgin Islands	Cruz Bay	91	9	Catherineburg	65	24	Annaly	17.18	Tague Bay	7.32	
Washington	Glenoma 1 W	71	15	Winthrop 1 WSW	-5	29	Long Beach Exp Sta	9.36	Sequim	.26	
West Virginia	Huntington WSO AP	82	1	Snowshoe	5	30	Pickens 1	5.13	Parkersburg WSO CI	2.38	
Wisconsin	3 Stations	69	18+	Newald 4 N	-7	11	Summit Lake Ranger Sta	3.38	Foxboro	.40	
Wyoming	2 Stations	69	18+	Sage 4 NNW	-32	30	La Grange	3.74	Shoshoni	T	

## METRIC UNITS

NOVEMBER 1979

- 5 -



ACVFMEP 1979

## CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1979

State and Station	Pressure		Temperature					Precipitation					Wind				No of days (sunrise to sunset)			Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	Station Q	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days		Total	Departure from normal	Greatest in 24 hours	25 mm. or more	With thunderstorms	Total	Snow, ice pellets		Resultant speed	Resultant direction	Speed (1.6 kilometers)	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
											Max 32.2 °C or above	Min. 0 °C or lower																		Average dew point	Average relative humidity	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm



## NOVEMBER 1979

State and Station	Pressure			Temperature				Precipitation				Wind			No. of days (sunrise to sunset)																
	Elevation (ground)	Station ID	Sea level	Average maximum	Average minimum	Departure from normal	Temperature		Total	Departure from normal	No. of days		Resultant speed	Resultant direction	Speed	Direction	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10	Sky cover, tenths (sunrise to sunset)											
							Highest	Lowest			Date	Max 32.2 °C or above									Min. 0 °C or lower	Average dew point	Average relative humidity	Greatest in 24 hours	25 mm. or more	With thunderstorms	Maximum depth on ground	Snow, ice pellets			
																													No. of days		
m	mb	mb	°C	°C	°C	°C	°C	°C	mm	mm	mm	mm	m/s	m/s	m/s	°			°												
MISSISSIPPI																															
88	1009.8	1021.1	19.1	3.6	11.3	-1.0	27.8	9	-6.7	30	0	7	5.6	74	188	90	66	7	2	-	0	0.8	34	8.9	18	27*	14	6	10	4.7	
MISSOURI																															
270	889.5	1019.5	10.1	0.4	5.3	-1.3	21.7	19	-7.8	30	0	15	-0.6	69	57	12	41	6	0	T	T	1.0	24	12.1	NW	28*	9	8	13	6.1	50
297	981.4	1019.0	9.7	-0.1	4.6	-0.9	20.6	17	-7.8	30	0	17	-2.2	61	46	12	39	6	0	T	T	2.5	23	13.4	N	1	9	8	13	5.5	58
226	981.4	1019.0	11.7	1.9	6.8	-0.4	23.3	17	-6.1	30	0	11	-0.6	61	53	17	39	6	0	T	T	2.1	24								
247	981.4	1019.0	11.7	1.9	6.8	-0.4	23.3	17	-6.1	30	0	11	-0.6	61	53	17	39	6	0	T	T	2.1	24								
163	998.0	1019.6	11.9	1.9	6.9	-0.3	24.4	19	-6.7	30	0	11	-2.2	74	53	21	43	10	0	T	T	2.2	25	13.4	NW	28	5	12	13	6.5	45
393	973.6	1019.9	12.2	0.3	6.5	-1.0	24.4	19	-7.2	30*	0	16	-2.6	64	82	21	43	7	2	T	T	2.0	22	12.1	NW	28	6	9	12	5.6	49
ARIZONA																															
167	891.3	1025.6	4.0	-3.2	0.8	-1.2	16.1	16	-12.8	21	0	24	-7.8	58	13	-5	9	0	0	186	152	3.8	25	13.9	NW	24	11	8	11	5.5	57
696	936.0	1020.6	2.8	-8.5	-2.8	-1.2	15.6	16*	-17.7	29	0	28	-7.2	76	5	-1	2	0	0	69	71	1.2	32	11.6	NW	10	9	9	16	4.0	57
1116	991.0	1022.5	5.0	-4.9	0.8	-0.7	17.2	15	-15.6	28	0	26	-8.9	55	7	-1	2	0	0	79	75	1.7	32	13.8	NW	10	9	9	16	4.0	57
1789	925.8	1023.4	6.4	-7.8	-0.4	-0.7	17.8	16	-15.6	28	0	29	-9.4	51	1	-4	2	0	0	101	91	1.7	32	13.8	NW	10	9	9	16	4.0	57
1804	989.5	1024.1	7.4	-6.1	-1.7	-1.5	17.5	1	-11.1	30	0	27	-9.4	51	1	-4	2	0	0	101	91	1.7	32	13.8	NW	10	9	9	16	4.0	57
1804	989.5	1024.1	7.4	-6.1	-1.7	-1.5	17.5	1	-11.1	30	0	27	-9.4	51	1	-4	2	0	0	101	91	1.7	32	13.8	NW	10	9	9	16	4.0	57
901	935.0	1025.0	2.6	-7.1	-1.2	-0.4	17.8	16	-15.6	28	0																				



## CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation					Wind			No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset) %												
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	Max 32° or above	Min. 0° or lower	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	.25 mm. or more	No. of days with thunderstorms	Total	No. of days with thunderstorms	Maximum depth on ground	Resultant speed	Resultant direction	Speed (11.6 kilometers)	Direction	Date	Clear, 0-3	Partly cloudy, 4-7	Cloudy, 8-10		
		mb	mb	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	%	mm	mm	mm	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	mm	mm	mm	mm		
		in	in	°F	°F	°F	°F	°F	°F	°F	°F	°F	°F	%	mm	mm	mm	mm	mm	mm	mm	mm	mm	m/s	m/s	m/s	mm	mm	mm	mm		
NEW YORK																																
SYRACUSE	121	1003.4	1018.4	11.7	2.6	6.9	1.9	20.0	-5.6	16	0	9	2.8	77	83	1	17	15	0	38	25	1	1.7	72	20.6	M 26	13	0	6	24	8.7	21
NORTH CAROLINA																																
ASHEVILLE	652	947.8	1020.7	15.6	3.4	9.6	1.6	22.8	-7.2	30	0	13	5.0	79	197	123	44	10	2	1	0	0.9	75	13.0	N 3	13	5	12	5	12	5.0	54
CAROLINA	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
CHARLOTTE	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
CHESAPEAKE	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
CONCORD	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
DURHAM	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
FAYETTEVILLE	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
GREENSBORO	224	997.2	1020.6	17.4	5.8	11.6	1.1	27.9	-6.1	30	0	3	10.6	77	215	102	100	98	4	0	0	0.6	76	13.9	N 26	12	6	12	5	12	5.3	53
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25	9.4	N 26	15	6	9	4.5	62	4.5	62
WILMINGTON	10	1004.4	1020.6	15.1	4.1	11.1	1.1	25.6	-10.0	30	0	10	7.2	61	120	49	46	7	3	0	0	0.2	25									

## CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature					Precipitation					Wind			No. of days (sunrise to sunset)		Possible sunshine (sunrise to sunset)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		Station Q	Sea level mb	C	Average maximum	C	Average minimum	C	Average from normal	Highest C	Lowest C	Date	No. of days	Average relative humidity %	Total mm	Departure from normal mm				Greatest in 24 hours mm	With thunderstorms 25 mm. or more	Total mm	Snow, ice pellets	Fastest mile (1.6 kilometers)	Direction	Speed m/s																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
																	C	F									C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F	C	F</

## CLIMATOLOGICAL DATA

METRIC UNITS

NOVEMBER 1979

[illegible]



# HEATING DEGREE DAYS

(Base 65°F.)

NOVEMBER 1979

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				IDAHO				NEBRASKA				TENNESSEE			
BIRMINGHAM	196	515	429	BOISE	903	1262	1201	GRAND ISLAND	915	1349	1279	BRISTOL	483	835	865
BIRMINGHAM	452	466	534	LEWISTON	819	1126	1285	LINCOLN	825	1201	1192	CHATTANOOGA	438	605	674
HUNTSVILLE	484	621	611	POCAHONTO	1050	1589	1608	NORFOLK	954	1457	1398	KNOXVILLE	407	627	659
MONTGOMERY	246	289	250	ILLINOIS				NORTH PLATTE	975	1383	1459	MEMPHIS	426	502	572
	242	358	199	CAIRO	495	633	669	OMAHA (EPPEL)	867			NASHVILLE	487	672	688
ALASKA				CHICAGO O HARE	722	1201	1249	OMAHA (NORTH)	837	1258	1271	OAK RIDGE	507	781	773
ANCHORAGE	937	2376	3262	CHICAGO MIDWAY	726	1169	1119	SCOTTSDUFF	984	1412	1491				
ANNETTE	1060	5165	6211	MOBILE	831	1368	1204	VALENTINE	1040	1633	1554	TEXAS			
BARBER ISLAND	1591	5208	6037	PEORIA	804	1297	1158	NEVADA				ABILENE	429	472	425
BETHEL	1186	3444	3826	ROCKFORD	866	1471	1335	ELKO	931	1289	1802	AMARILLO	727	943	787
BETTES	1435	3656	4774	SPRINGFIELD	684	1066	1031	FLY	1005	1710	1869	AUSTIN	278	294	244
BIG DELTA	1216	2897	4122	INDIANA				LAS VEGAS	395	439	431	BROWNSVILLE	99	99	40
COLD BAY	893	2866	3126	EVANSVILLE	619	938	873	RENO	805	1237	1438	CORPUS CHRISTI	131	137	88
FAIRBANKS	1336	3155	4170	FORT WAYNE	756	1329	1209	WINNEPUCCA	875	1332	1596	DALLAS FT WORTH	370	404	347
GULFKANA	1120	3137	4213	INDIANAPOLIS	705	1192	1069					DEL RIO	233	243	218
HOMER	861	2543	3285	SOUTH BEND	672	1116	1258	NEW HAMPSHIRE	675	1517	1540	EL PASO	505	585	494
JUNEAU	840	2310	2788	IOWA				CONCORD	1165	4027	4145	GALVESTON	297	324	179
KING SALMON	1643	2780	3464	REPLINGTON	762	1193	1154	MT WASHINGTON OBS				HOUSTON INTERCON	570	683	656
KODIAK	785	2175	2760	CBS MOINFS	801	1208	1273					LUBBOCK	459	525	437
KOTZEBUE	1400	3867	4537	DOUBQUE	873	1465	1467	NEW JERSEY				MIDLAND	278	301	219
MC GRATH	1299	3275	4243	KIOLX CITY	922	1474	1362	ATLANTIC CITY	483	929	867	PORT ARTHUR	430	487	371
NOME	1207	3543	4253	WATERLOO	675	1391	1493	ATLANTIC CITY U	404	714	720	SAN ANGELO	243	258	211
ST. PAUL ISLAND	843	2942	3556	KANSAS				NEWARK	393	716	841	SAN ANTONIO	243	263	138
TALKEETNA	1131	2821	3554	CONCORDIA	788	1059	1056	TRENTON U	422	808	852	WACO	384	427	292
UNALAKLET				RODGE CITY	816	1087	954	NEW MEXICO				WICHITA FALLS	464	521	461
VALDFZ	448	2734	3541	GOOELAND	909	1316	1290	ALBUQUERQUE	715	886	840	UTAH			
YAKUTAT	800	2421	2970	TOPEKA	741	1057	977	CLAYTON	818	1169	1078	MILFORD	958	1355	1401
ARIZONA				WICHITA	640	856	849	ROSWELL	602	744	755	SALT LAKE CITY	846	1123	1289
FLAGSTAFF	1006	1945	1752	KENTUCKY				NEW YORK				VERMONT			
PHOENIX	224	215	159	COVINGTON	616	1037	951	ALBANY	619	1306	1350	RURLINGTON	703	1532	1602
TUCSON	252	278	150	LEXINGTON	574	926	898	BINGHAMTON	669	1505	1493				
WINSLOW	746	1031	925	LOUISVILLE	534	797	876	BUFFALO	636	1276	1358	VIRGINIA			
YUMA	84	86	108	LOUISIANA				NEW YORK U	373	672	766	LYNCHBURG	444	797	807
ARKANSAS				BATON ROUGE	308	352	262	NEW YORK KENNEDY	493	859	844	NORFOLK	272	462	552
FORT SMITH	567	698	573	LAKE CHARLES	284	309	213	NEW YORK LA GUARCIA	440	774	785	RICMOND	353	603	704
LITTLE ROCK	436	516	589	NEW ORLEANS	230	243	219	POCHESTEP	655	1328	1294	ROANOKE	458	848	816
ND. LITTLE ROCK	466	569	539	SHREVEPORT	366	418	348	SYRACUSE	607	1265	1261	WALLOPS ISLAND	353	559	658
CALIFORNIA				MAINE				NORTH CAROLINA				WASHINGTON			
BAKERSFIELD	196	216	331	CAPRIROU	670	1989	2198	ASHEVILLE	468	816	880	OLYMPIA	737	1436	1487
BISHOP	634	872	884	PORTLAND	672	1554	1567	CAPE HATTERAS	208	320	353	QUILLAYUTE	625	1448	1705
BLUE CANYON	640	1350	1149	MARYLAND				CHARLOTTE	357	569	587	SEATTLE	591	1008	1183
EUREKA U	369	1065	1498	FALTIMORE	425	763	844	GREENSBORO	377	644	734	SEATTLE-TACOMA	628	1108	1341
FRESNO	323	379	435	MASSACHUSETTS				PALMIST	394	603	648	SPOKANE	1029	1588	1682
LONG BEACH	147	166	210	BLUE HILL OBS R	546	1185	1178	WILMINGTON	239	351	368	STAMPEDE PASS R	1086	2590	2727
LOS ANGELES	121	139	242	ROSTON	484	971	979	NORTH DAKOTA				WALLA WALLA U	829	1088	1088
LOS ANGELES U	59	60	153	WROCESTER	614	1372	1346	RISMARCK	1166	2049	1952	YAKIMA	919	1382	1464
MT SHASTA R	798	1416	1567	MICHIGAN				FARGO	1209	2085	1930	WEST VIRGINIA			
OAKLAND	257	365	639	ALPENA	929	1928	1902	WILLISTON	1190	1944	2036	BECKLEY	611	1240	1222
RED BLUFF	355	444	421	CETROIT	758	1396	1240	OHIO				CHARLESTON	519	904	901
SACRAMENTO	391	491	466	FLINT	753	1403	1431	AKRON	664	1289	1224	ELKINS	652	1358	1344
SAN DIEGO	75	79	205	GRAND RAPIDS	731	1309	1347	CINCINNATI ABGE OB	593	984	894	HUNTINGTON	494	849	896
SAN FRANCISCO	320	524	671	HOUGHTON LAKE	893	1843	1858	CLEVELAND	670	1191	1177	PARKERSBURG U	512	928	914
SAN FRANCISCO U	213	576	841	LANSING	752	1461	1389	COLUMBUS	632	1118	1125	WISCONSIN			
SANTA MARIA	249	527	737	MUSKOGON	766	1476	1384	DAYTON	649	1167	1073	GREEN BAY	928	1734	1684
STOCKTON	338	398	451	SAULT STE MARIE	979	2183	2061	MANFIELD	719	1367	1111	LA CROSSE	894	1583	1466
COLORADO				MINNESOTA				TOLEDO	724	1334	1263	MADISON	890	1656	1609
ALAMOSA	1312	2353	2146	DULUTH	1059	2152	2198	YOUNGSTOWN	652	1310	1274	MILWAUKEE	797	1348	1486
COLORADO SPRINGS	1005	1547	1458	INTERNATIONAL FALLS	1277	2700	2412	OKLAHOMA				WYOMING			
DENVER	941	1366	1296	MINNEAPOLIS	992	1687	1655	OKLAHOMA CITY	551	645	634	CASPER	1149	1831	1728
GRAND JUNCTION	945	1157	1140	ROCHESTER	974	1684	1698	TULSA	525	615	621	CHEYENNE	1058	1695	1693
FUFELO	670	1222	1116	ST CLOUD	1081	2011	1872	OREGON				SHERIDAN	1164	1772	1817
CONNECTICUT				MISSISSIPPI				ASTORIA	537	1136	1448	LANDER	1051	1694	1785
BRIDGEPORT	523	988	973	JACKSON	421	519	392	PUPUS U	984	1599	1749				
HARTFORD	578	1218	1213	MERIDIAN	374	467	442	EUGENE	673	1032	1159				
DELAWARE				MISSOURI				HEOFORD	668	886	1126				
WILMINGTON	458	818	865	COLUMBIA REGIONAL	698	999	922	PENDLETON	902	1283	1208				
DIST OF COLUMBIA				KANSAS CITY	720	1012	960	PORTLAND	592	835	1161				
WASHINGTON DULLES	461	870	943	ST JOSEPH	720	1036	1000	SALEM	691	1127	1176				
WASHINGTON NATIONAL	313	549	714	ST LOUIS	610	849	859	SEXTON SUMMIT R	676	1479	1555				
FLORIDA				SPRINGFIELD	623	849	851	PENNSYLVANIA							
APPALACHICOLA U	147	157	180	MONTANA				ALLENTOWN	509	1006	1116				
CAYTONA BEACH	75	75	97	BILLINGS	937	1373	1612	BRIE	634	1149	1370				
FORT MYERS	14	14	44	GLASGOW	1139	1765	1764	HARRISBURG	534	1026	987				
JACKSONVILLE	144	163	180	GREAT FALLS	1005	1645	1942	PHILADELPHIA	439	802	851				
KEY WEST	0	0	0	HAVER	1072	1753	2044	PITTSBURGH	601	1199	1204				
MIAMI	6	6	13	HELENA	1071	1924	2265	SCRANTON	568	1173	1258				
ORLANDO	47	47	75	KALISPELL	1048	1566	1728	WILLIAMSPORT	601	1204	1184				
PENSACOLA	194	213	221	MILES CITY	1130	1818	2040	RHODE ISLAND							
TALLAHASSEE	713	267	235	MISSOURI				PROVIDENCE	402	816	970				
TAMPA	47	47	71					SOUTH CAROLINA							
WEST PALM BEACH	11	11	22					CHARLESTON	203	271	345				
GEORGIA								CHARLESTON U	144	176	261				
ATHENS	295	430	540					COLUMBIA	314	458	453				
ATLANTA	720	447	552					GREENVILLE-SPRING	362	565	574				
AUGUSTA	294	423	448					SOUTH DAKOTA							
COLUMBUS	245	315	405					ABERDEEN	1068	1824	1803				
MALEN	221	303	366					MURON	997	1725	1651				
ROME	428							PAPIN CITY	952	1477	1583				
SAVANNAH	183	224	313					SIOUX FALLS	1038	1681	1615				

# COOLING DEGREE DAYS

(Base 65°F.)

NOVEMBER 1979

State and station	Current season			State and station	Current season			State and station	Current season			State and station	Current season		
	This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month		This month	Period January through this month	Normals January through this month
ALABAMA				HAWAII				NEBRASKA				SOUTH CAROLINA			
BIRMINGHAM U	5	1725	2215	HILLO	246	2941	2861	GRAND ISLAND	0	978	1036	CHARLESTON	40	2204	2078
BIRMINGHAM	7	1717	1920	HONOLULU	378	4143	3951	LINCOLN	0	1098	1148	CHARLESTON U	47	2168	2347
MONTICELLO	0	1436	1808	KAHULUI	314	3869	3448	NORFOLK	0	948	925	COLUMBIA	22	1693	2087
MORRIS	16	2437	2567	LIHUE	303	3701	3466	NORTH PLATTE	0	862	802	GRANVILLE-SPRINGBRO	1	1296	1573
MONTGOMERY	8	2032	2238					OMAHA (EPPLEY)	0	1002	949				
ALASKA				ILWACO	0	752	714	OMAHA (NORTH)	0	853	666	SOUTH DAKOTA			
ANCHORAGE	0	4	0	LEWISTON	0	968	657	SCOTTSDUFF	0	777	736	ABERDEEN	0	502	566
ANNETTE	0	0	14	POCAHONTAS	0	479	437	VALENTINE	0	777	736	HURON	0	783	711
BARROW	0	0	0									RAPID CITY	0	550	661
BARTER ISLAND	0	0	0	ILLINOIS				NEVADA				SIOUX FALLS	0	724	719
BETHEL	0	0	0	CAIRO	2	1764	1808	ELKO	0	694	342				
BETHLEHEM	0	12	17	CHICAGO O HARE	0	806	664	ELY	0	208	207	TENNESSEE			
BIG DELTA	0	28	34	CHICAGO MIDWAY	0	812	925	LAS VEGAS	0	3387	2946	BRISTOL	0	720	1107
COLD BAY	0	0	0	MOBILE	0	907	893	RENO	0	404	329	CHATTANOOGA	0	1432	1636
FAIRBANKS	0	23	52	PEORIA	0	903	968	WINNEMUCCA	0	593	407	KNOXVILLE	4	1355	1569
GULFANA	0	0	0	ROCKFORD	0	179	714					MEMPHIS	4	2088	2029
HUACU	0	0	0	SPRINGFIELD	0	1201	1116	NEW HAMPSHIRE				NASHVILLE	0	1376	1694
JUNEAU	0	0	0					CUNCOBO	0	519	349	OAK RIDGE	0	1044	1367
KING SALMON	0	0	0	INDIANA				MT WASHINGTON OBS	0	0	0				
KODIAK	0	8	0	EVANSVILLE	0	1238	1364					TEXAS			
KOTZEBUE	0	3	0	FORT WAYNE	0	677	744	NEW JERSEY				ABILENE	11	2512	2466
MC GRATH	0	2	14	INDIANAPOLIS	0	882	974	ATLANTIC CITY	0	850	864	AMARILLO	0	1168	1433
NOME	0	0	0	SOUTH BEND	0	801	695	ATLANTIC CITY U	0	713	835	AUSTIN	29	2623	2903
ST. PAUL ISLAND	0	0	0					NEWARK	3	1156	1024	BROWNSVILLE	118	3643	3797
TALKEETNA	0	1	6	IOWA				THRENTON U	1	936	968	CORPUS CHRISTI	89	3473	3437
UNALAKLET	0	4	0	BURLINGTON	0	931	994	NEW MEXICO				DALLAS FT WORTH	14	2509	2587
VALLEZ	0	4	0	DES MOINES	0	984	928	ALBUQUERQUE	0	1508	1316	DEL RIO	24	1201	1313
YAKUTAT	0	0	0	DUBUQUE	0	600	606	CLAYTON	0	742	767	FL FASO	0	2157	2094
				SIOUX CITY	0	865	932	ROSWELL	0	1684	1560	GALVESTON	22	2629	2987
ARIZONA				WATERLOO	0	770	675					HOUSTON INTERCON	26	2571	2878
FLAGSTAFF	0	45	140					NEW YORK				LUBBOCK	0	1874	1647
PHOENIX	7	4146	3508	KANSAS				ALBANY	0	636	574	MIDLAND	0	2109	2250
TUCSON	6	1052	2814	CONCORDIA	0	1280	1302	BINGHAMTON	0	371	369	PORT ARTHUR	27	2579	2790
WINSTON	0	1185	1203	JORDGE CITY	0	1316	1411	RUFFALO	0	570	437	SAN ANGELO	12	2357	2702
YUMA	14	4371	4189	WADLAND	0	939	925	NEW YORK U	5	1218	1068	SAN ANTONIO	42	2985	2987
				TOROKA	0	1275	1361	NEW YORK KENNEDY	0	824	861	VICTORIA	28	2824	3125
ARKANSAS				WICHITA	0	1663	1673	NEW YORK LA GUARDIA	0	1049	1048	WACO	17	2316	2863
FOOT SMITH	4	1646	2022	KENTUCKY				ROCHESTER	0	597	531	WICHITA FALLS	14	2414	2611
LITTLE ROCK	1	1926	1925	COVINGTON	0	845	1060	SYRACUSE	0	595	551				
NO. LITTLE ROCK	1	1703	1951	LEXINGTON	0	968	1197					UTAH			
				LOUISVILLE	0	1236	1268	NORTH CAROLINA				MILFORD	0	589	688
CALIFORNIA								ASHEVILLE	0	792	872	SALT LAKE CITY	0	1274	927
BAKERSFIELD	1	2730	2179	LOUISIANA				CAPE HATTERAS P	24	1556	1550				
BISHOP	0	1054	1037	BATON ROUGE	14	2373	2579	CHARLOTTE	3	1366	1596	VERMONT			
BLUE CANYON	0	15	0	LAKE CHARLES	17	2443	2732	GREENSBORO	4	1180	1341	BURLINGTON	0	531	396
FUREKA U	0	2267	1671	NEW ORLEANS	25	2879	2695	PALEIGH	10	1275	1394				
FRESNO	1	1189	985	SHREVEPORT	8	2114	2538	WILMINGTON	28	1966	1964	VIRGINIA			
LONG BEACH	9	822	615									LYNCHBURG	0	982	1100
LOS ANGELES	53	1344	1185	MAINE				BISMARCK	0	365	487	NORFOLK	22	1433	1441
MT SHASTA R	3	235	286	CARIBOU	0	290	128	FARGO	0	504	473	RICHMOND	9	1375	1353
OAKLAND	0	252	128	PORTLAND	0	316	252	WILLISTON	0	415	422	ROANOKE	1	902	1030
RED BLUFF	0	2208	1904									WALLOPS ISLAND	0	1187	1107
SACRAMENTO	0	1294	1159	MARYLAND											
SAN DIEGO	5	1207	722	BALTIMORE	1	1137	1108	OHIO				WASHINGTON			
SAN FRANCISCO	0	182	108					AKRON	0	564	634	OLYMPIA	0	93	101
SAN FRANCISCO U	0	113	84	MASSACHUSETTS				CINCINNATI ABBE OB	0	930	1188	QUILLAYUTE	0	15	8
SANTA MARIA	0	1793	1259	BLUE HILL OBS R	0	584	457	CLEVELAND	0	715	613	SAN ANGELO	0	139	181
STOCKTON	0	125	39	BOSTON	0	789	661	COLUMBUS	0	808	809	SEATTLE-TACOMA	0	171	129
				WORCESTER	0	483	387	DAYTON	0	854	936	SPokane	0	496	388
COLORADO								MANSFIELD	0	531	818	STAMPEDE PASS R	0	33	16
ALAMOSA	0	34	88	MICHIGAN				TOLEDO	0	602	685	WALLA WALLA U	0	1032	862
COLORADO SPRINGS	0	473	461	ALPENA	0	272	208	YOUNGSTOWN	0	501	518	YAKIMA	0	571	479
DENVER	0	661	625	DETROIT	0	522	654	OKLAHOMA							
GRAND JUNCTION	0	1263	1140	DETROIT METRO	0	509	438	OKLAHOMA CITY	2	1805	1876	WEST INDIES			
PUEBLO	0	904	981	FLINT	0	614	575	TULSA	6	2157	1949	SAN JUAN P.R.	477	5445	4616
				GRAND RAPIDS	0	271	250					WEST VIRGINIA			
CONNECTICUT				HOUGHTON LAKE	0	578	535	OREGON				BECKLEY	0	404	490
BRIDGEPORT	0	731	735	LANSING	0	379	469	ASTORIA	0	27	13	CHARLESTON	0	894	1055
HARTFORD	0	811	584	MUSKOGEE	0	145	139	BURNS U	0	367	289	ELKINS	0	392	389
				SAULT STE MARIE				EUGENE	0	182	239	HUNTINGTON	3	1004	1078
DELAWARE								WEDFORD	0	658	562	PARKERSBURG U	0	840	1045
WILMINGTON	0	990	992	MINNESOTA				PENOLETON	0	650	654				
				DULUTH	0	169	176	PORTLAND	0	462	300	WISCONSIN			
DIST. OF COLUMBIA				INTERNATIONAL FALLS	0	131	176	SALEM	0	219	232	GREEN BAY	0	380	386
WASHINGTON DULLES	6	576	940	MINNEAPOLIS	0	651	585	SEXTON SUMMIT R	0	228	137	LADROSSE	0	584	695
WASHINGTON NATIONAL	2	1479	1415	ROCHESTER	0	611	474					MADISON	0	450	460
				ST CLOUD	0	324	426					MILWAUKEE	0	538	450
FLORIDA								PACIFIC AREA							
APALACHICOLA U	46	2427	2649	MISSISSIPPI				EVAN TACUAC P	422	4722	4592				
DAYTONA BEACH	111	2938	2874	JACKSON	4	1945	2316	JOHNSTON	424	4825	4695	WYOMING			
FORT MYERS	297	4125	3605	MERIDIAN	6	1942	2231	WYOMING	522	5627	5503	CASPER	0	415	458
JACKSONVILLE	61	2440	2577					WYOMING	510	5822	5649	CHEYENNE	0	352	327
KEY WEST	362	4771	4668	MISSOURI				KWAJALEIN	510	5511	5405	LANDER	0	436	383
MIAMI	324	4040	3879	COLUMBIA REGIONAL	0	1165	1269	MAJURO	510	5511	5405	SHERIDAN	0	318	446
ORLANDO	153	3262	3164	KANSAS CITY	0	1174	1285	PAGO PAGO	470	5262	4860				
PENSACOLA	16	2559	2683	ST JOSEPH	0	1097	1334	PONAPE R	508	5571	5168				
TALLAHASSEE	35	2196	2553	ST LOUIS	0	1578	1475	TRUK MOEN ISLAND	504	5711	5383				
TAMPA	144	3182	3102	SPRINGFIELD	0	1122	1382	WAKE	436	5442	5033				
WEST PALM BEACH	266	3628	3652					YAP R	493	5402	5420				
GEORGIA				MONTANA								PENNSYLVANIA			
ATHENS	6	1614	1722	BILLINGS	0	716	498	ALLENTOWN	1	811	772				
ATLANTA	5	1762	1589	GLASGOW	0	533	434	ELIZ	0	492	371				
AUGUSTA	20	1829	2145	GREAT FALLS	0	396	334	HARRISBURG	0	828	1025				
COLUMBUS	24	2241	2193	HAWY	0	514	394	PHILADELPHIA	1	1097	1104				
MACON	13	2111	2294	HELENA	0	322	256	PITTSBURGH	0	620	647				
ROME	0	0	0	KALISPELL	0	258	117	SCRANTON	0	634	604				
SAVANNAH	51	2384	2311	WILF CITY	0	802	752	WILLIAMSPORT	0	787	698				
				MISSOULA	0	390	144					RHODE ISLAND			
								BLOCK ISLAND	0	509	359				
								PROVIDENCE	0	640	532				

## STORM SUMMARY

November 1979

STATE	TORNADOES					HAILSTORMS			WINDSTORMS				LIGHTNING			@HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				φ ALL OTHER						
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS					
Alabama	5			38	6					1																				
Alaska																														
Arizona																														
Arkansas	*																													
California	*																													
Colorado																														
Connecticut	*																													
Delaware																														
Florida																														
Georgia	3	1																												
Hawaii	*																													
Idaho	*																													
Illinois																														
Indiana	*																													
Iowa	*																													
Kansas	*																													
Kentucky	*																													
Louisiana										1																				
Maryland																														
Maryland & DC																														
Massachusetts	*																													
Michigan											1		5											8		4				
Minnesota	*																													
Mississippi											1		4																	
Missouri																														
Montana	*																													
Nebraska																														
Nevada																														
New Hampshire																														
New Jersey	3	1																												
New Mexico	*																													
New York																														
North Carolina	*																													
North Dakota	*																													
Ohio	*																													
Oklahoma	1	1												1	1		4													
Oregon	*																													
Pennsylvania	5	1																												
Puerto Rico																														
Rhode Island	*																													
South Carolina																														
South Dakota																														
Tennessee																														
Texas	3	2																												
Utah	*																													
Vermont																														
Virginia																														
Virgin Islands	*																													
Washington																														
West Virginia	*																													
Wisconsin																														
Wyoming																														



# RAWINSONDE DATA

Average monthly values

NOVEMBER 1975

ALBANY, NY 1009 MB												ALBUQUERQUE, NM 839 MB												AMARILLO, TX 801 MB												ANCHORAGE, AK 999 MB												ANNETTE, AK 1011 MB																																																																																																																																																																																																																																																																																																																																																																																								
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SFC	29	86	4.7	2.1	21	1.6	1	1.619	-1.1	-5.1	9	1.2	30	1.658	-1.1	-5.6	28	2.0	10	45	-8	-1.9	11	1.5	29	37	5.8	1.8	12	2.8	1000	26	172	5.3	1.6	21	2.2	2	17	127	2.7	-1.3	14	3.1	24	150	5.8	-2.1	11	2.4	950	29	581	5.1	1.7	22	5.6	29	582	4.8	-2.8	14	7.0	850	29	1,022	3.7	-1.2	22	7.9	10	885	-1.7	-6.5	16	5.8	29	981	2.5	-5.0	16	7.6	750	29	1,480	-1.5	-10.4	10	10.4	10	1,338	-3.1	-9.2	17	7.4	29	1,343	-1.0	-8.9	17	8.1	650	29	1,974	1.6	-8.6	25	12.6	30	2,004	1.7	-7.9	12	1.8	50	1,987	3.2	-6.2	29	4.8	500	29	2,492	-1.9	-12.8	25	15.3	30	2,521	-1.1	-10.8	29	4.1	30	2,506	-3.3	-11.9	27	7.4	450	29	3,040	-3.6	-15.2	25	17.1	30	3,069	-3.8	-14.4	28	7.7	30	3,055	-3.3	-14.7	27	9.2	350	29	3,622	-6.8	-19.0	25	19.4	30	3,651	-6.9	-19.1	28	10.1	30	3,636	-6.4	-19.3	27	10.7	400	29	4,243	-10.3	-23.2	25	22.3	30	4,272	-10.1	-22.9	28	11.9	30	4,256	-10.1	-23.6	27	13.7	450	29	4,908	-14.1	-27.0	25	25.2	30	4,938	-14.1	-26.7	28	13.8	30	4,925	-14.1	-26.6	27	15.2	500	29	5,626	-18.4	-29.4	25	28.3	30	5,654	-18.9	-30.9	28	16.7	30	5,641	-18.9	-30.8	27	16.9	550	29	6,405	-23.3	-35.2	25	30.2	30	6,431	-24.2	-35.1	28	18.5	30	6,419	-24.2	-35.6	27	20.5	600	29	7,257	-29.3	-39.2	25	30.5	30	7,286	-30.2	-40.7	28	20.1	30	7,272	-30.2	-41.0	27	23.6	650	29	8,201	-35.6	-45.3	25	30.8	30	8,231	-36.8	-45.6	28	21.2	30	8,208	-37.0	-45.5	27	25.0	700	29	9,253	-43.4	-51.0	25	31.8	30	9,283	-43.4	-51.0	28	25.4	30	9,269	-43.4	-51.0	27	27.8	750	29	10,459	-51.2	-57.0	25	34.1	30	10,489	-51.9	-57.0	28	26.0	30	10,474	-51.1	-57.1	27	30.8	800	29	11,889	-57.9	-63.4	25	33.8	30	11,919	-58.0	-63.4	28	28.5	30	11,899	-58.0	-63.4	27	33.8	850	29	13,478	-64.1	-69.4	25	33.4	30	13,508	-64.1	-69.4	28	28.9	30	13,488	-64.1	-69.4	27	33.8	900	29	15,137	-71.2	-75.7	25	33.4	30	15,167	-71.2	-75.7	28	28.9	30	15,147	-71.2	-75.7	27	33.8	950	29	16,906	-77.9	-81.9	25	33.4	30	16,936	-77.9	-81.9	28	28.9	30	16,916	-77.9	-81.9	27	33.8	1000	29	18,775	-84.1	-87.9	25	33.4	30	18,805	-84.1	-87.9	28	28.9	30	18,785	-84.1	-87.9	27	33.8

## Average monthly values

NOVEMBER 1979

NOVEMBER 27																																		
CARIBOU, ME 993 MB							CENTREVILLE, AL 1004 MB							CHARLESTON, SC 1019 MB							CHATHAM, MA 1018 MB							CHIHUAHUA, MEXICO 859 MB						
Standard pressure surface mb	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg	Resultant Wind Speed mps										
1000	13	101	-1	-1.6	26	1.3	30	140	7.4	5.9	02	1.2	30	13	10.9	9.1	34	.7	30	16	8.3	5.6	25	1.2										
0500	30	243	-.2	-3.0	24	4.1	30	599	7.6	3.2	01	2.1	30	170	15.1	8.9	01	.5	30	162	9.6	5.9	26	2.9										
0500	30	279	-.9	-4.7	26	6.6	30	1,047	8.5	-1.8	23	2.3	30	1,059	11.6	2.4	22	3.1	30	1,030	5.8	-1.8	26	6.5										
0500	30	1,631	-2.3	-7.4	26	8.9	30	1,519	7.7	-4.5	24	5.1	30	1,056	10.1	-2.1	23	5.3	30	1,497	4.3	-5.4	26	8.9										
0500	30	1,951	-3.1	-11.7	26	11.2	30	2,017	6.0	-8.5	24	6.8	30	2,039	8.3	-6.2	24	7.0	30	1,990	3.1	-8.3	26	11.2										
0500	30	2,421	-4.2	-14.1	26	14.5	30	2,548	4.3	-12.4	25	8.3	30	2,571	7.4	-10.1	24	9.8	30	2,512	1.1	-11.9	26	14.5										
0700	30	2,963	-7.1	-17.9	26	16.4	30	3,103	1.9	-13.5	25	11.1	30	3,135	4.2	-13.4	24	8.0	30	3,064	-1.5	-14.0	26	16.4										
0650	30	3,585	-9.7	-21.1	26	19.1	30	3,697	-1.4	-16.3	25	12.5	30	3,735	.9	-15.8	25	10.9	30	3,651	-4.2	-19.2	26	18.0										
0800	30	4,150	-13.0	-24.2	26	21.0	30	4,330	-5.2	-20.7	25	14.8	30	4,373	-3.0	-21.4	25	12.0	30	4,278	-7.7	-22.0	26	20.5										
0800	30	4,496	-17.0	-28.7	26	23.3	30	5,008	-1.9	-23.8	25	17.5	30	5,056	-7.4	-25.6	25	13.2	30	4,950	-11.7	-24.5	26	21.8										
0800	30	5,517	-25.7	-32.7	26	25.7	30	5,740	-1.7	-37.8	25	19.8	30	5,791	-1.1	-39.2	25	14.9	30	5,673	-7.7	-38.0	26	23.1										
0800	30	6,286	-26.0	-36.7	26	29.2	30	6,532	-19.3	-32.4	25	22.3	30	6,588	-17.8	-32.7	25	16.9	30	6,457	-21.6	-33.0	25	25.6										
0800	30	7,123	-31.6	-41.6	26	32.6	30	7,397	-25.5	-37.9	25	24.1	30	7,459	-24.0	-37.1	25	18.9	30	7,315	-27.7	-38.0	26	27.1										
0800	30	8,064	-36.6	-46.6	26	35.7	30	8,355	-32.8	-43.3	25	26.3	30	8,423	-31.2	-42.6	25	21.0	30	8,264	-34.7	-43.3	25	28.5										
0800	30	9,139	-44.3	-50.9	26	40.9	30	9,419	-40.8	-48.3	25	27.5	30	9,494	-39.3	-48.8	25	23.5	30	9,321	-42.4	-48.5	25	29.8										
0800	30	10,313	-51.0	-57.0	26	39.2	30	10,637	-48.3	-57.7	25	29.5	30	10,719	-47.1	-57.1	25	28.9	30	10,532	-50.6	-57.0	25	31.2										
0800	30	11,746	-56.3	-62.6	26	34.9	30	12,072	-57.4	-63.7	25	36.2	30	12,162	-56.7	-63.0	25	33.0	30	11,960	-58.3	-63.0	25	30.9										
175	28	12,592	-57.3	-63.7	25	33.5	30	12,911	-59.5	-65.5	25	37.6	30	13,001	-60.5	-65.2	26	33.9	30	12,795	-60.6	-65.2	25	31.3										
150	28	13,566	-57.2	-63.5	26	29.6	27	13,871	-62.4	-64.4	25	35.0	30	13,954	-63.7	-64.5	26	33.1	30	13,753	-61.1	-62.4	26	29.0										
120	28	14,718	-57.8	-63.0	25	22.6	29	14,990	-65.0	-67.0	25	28.2	30	15,064	-66.7	-67.6	26	27.9	30	14,883	-61.9	-62.4	25	24.7										
090	27	16,117	-57.3	-62.4	24	19.4	29	16,342	-64.2	-65.2	25	23.8	30	16,432	-65.2	-66.2	25	23.1	30	16,255	-63.3	-63.3	25	21.9										
060	26	17,521	-59.0	-61.0	26	13.5	26	17,688	-66.1	-67.1	25	13.8	29	17,793	-67.4	-68.4	25	14.1	28	17,642	-63.5	-63.5	26	13.5										
70	24	18,352	-59.4	-61.4	26	14.3	27	18,500	-64.6	-65.6	25	10.9	29	18,553	-65.2	-66.2	25	10.5	28	18,464	-62.4	-62.4	26	11.8										
040	24	19,317	-59.7	-61.7	26	10.9	27	19,446	-62.5	-63.5	25	8.3	29	19,495	-63.5	-64.5	25	8.3	28	19,416	-62.4	-62.4	26	10.3										
030	23	20,447	-60.4	-62.4	26	9.7	27	20,574	-61.2	-62.2	25	6.7	29	20,620	-61.8	-62.8	27	5.9	28	20,543	-62.2	-62.2	27	8.6										
020	23	21,617	-60.3	-62.3	26	9.7	26	21,745	-60.9	-61.9	25	7.7	27	21,804	-61.5	-62.5	27	5.8	27	21,721	-61.9	-61.9	27	7.9										
010	23	23,333	-59.3	-61.3	28	5.7	26	23,770	-58.5	-59.5	26	6.4	23	23,808	-58.2	-59.2	28	7.5	26	23,711	-60.4	-60.4	29	5.1										
25	22	24,786	-59.1	-61.1	29	4.1	26	24,921	-56.7	-57.7	28	7.4	24	24,962	-56.3	-57.3	28	8.7	23	24,869	-59.3	-59.3	30	4.4										
20	22	26,188	-58.6	-60.6	32	3.0	25	26,342	-55.2	-56.2	27	9.0	23	26,387	-54.6	-55.6	27	13.2	22	26,273	-58.6	-58.6	31	4.8										
15	15	28,000	-57.2	-59.2	36	3.9	24	28,186	-53.0	-54.0	27	14.4	19	28,238	-51.5	-52.5	27	17.1	22	28,089	-56.7	-56.7	30	8.1										
14	14						22	30,827	-49.1	-50.1	27	16.3	6	30,848	-49.7	-50.7	25	15	30,654	-55.3	-55.3	28	13.6											

COLD BAY, FTX 997 MB										DAYTON, OH 984 MB										DEL RIO, TX 983 MB										DENVER, CO 835 MB										DESERT ROCK, NV 904 MB									
950	30	1.1	1.5	-1.1	24	1.5	28	299	3.0	-2	23	1.8	30	314	10.4	3.6	10	1.6	30	1,611	-3.6	-6.6	18	1.1	30	1,007	5.3	-9.8	05	1.7																			
1000	1	82	3.8	1.1	1	2.0																																											
1500	1	416	-6	-2.6	27	3.4	28	580	3.5	-1.1	26	5.1	30	597	11.4	3.2	13	3.7																															
900	3	848	-2.6	-4.8	28	4.1	28	1,018	1.5	-4.7	26	6.8	30	1,049	10.1	-2	16	3.5																															
1200	3	1,260	-5.0	-5.2	26	4.2	28	1,487	7.7	-10.6	26	7.5	30	1,023	7.6	-2	10	3.9																															
900	4	1,774	-7.6	-13.3	27	6.4	26	1,963	-6.6	-13.2	26	10.9	30	2,023	7.0	-5.6	23	3.9																															
750	3	2,273	-10.3	-18.3	27	7.3	28	2,477	-2.8	-15.4	26	12.7	30	2,552	5.2	-9.4	24	5.0																															
700	3	2,602	-13.3	-22.4	26	8.6	29	3,022	-5.2	-17.3	26	14.7	30	3,112	2.8	-13.8	26	7.5																															
650	3	3,363	-16.6	-24.0	26	8.5	28	3,601	-7.8	-19.8	26	16.3	30	3,709	-6.4	-17.3	26	9.7																															
600	3	3,960	-24.0	-26.2	25	8.7	26	4,219	-11.2	-23.9	26	18.6	30	4,343	-4.6	-21.5	26	11.0																															
550	3	4,559	-24.6	-31.1	24	10.0	28	4,882	-15.1	-26.6	26	21.3	30	5,024	-8.6	-24.8	26	13.6																															
500	3	5,287	-20.3	-35.9	23	10.0	21	5,597	-24.7	-31.0	26	23.6	30	5,756	-10.7	-30.1	26	16.3																															
450	3	6,032	-34.3	-36.9	24	10.2	28	6,333	-24.4	-36.0	26	27.0	30	6,550	-18.6	-33.7	26	19.9																															
400	3	6,846	-39.6	-40.8	24	11.6	26	7,121	-30.3	-41.7	26	29.4	30	7,417	-25.1	-38.9	26	22.4																															
350	3	7,751	-44.6	-44.3	24	13.6	26	8,160	-33.0	-46.2	26	29.3	30	8,376	-32.4	-44.0	26	27.4																															
300	3	8,770	-48.6		25	15.0	27	9,206	-44.2		26	32.9	30	9,442	-40.6	-49.7	26	28.2																															
250	3	9,964	-50.6		25	16.1	26	10,402	-51.3		26	32.2	30	10,660	-49.0		26	31.7																															
200	3	11,411	-50.1		25	17.8	26	12,001	-50.1		27	36.1	30	12,288	-56.7		26	35.8																															
175	3	12,291	-50.1		25	13.8	25	12,682	-56.5		27	27.9	30	12,938	-60.0		27	32.8																															
150	3	13,288	-50.1		25	13.0	25	13,657	-57.5		26	27.0	30	13,895	-60.3		26	30.4																															
125	29	14,474	-50.1		25	13.2	24	14,797	-58.9		26	25.4	30	15,010	-66.2		26	27.4																															
100	24	15,351	-50.5		25	12.2	22	16,188	-60.4		26	20.4	30	16,357	-67.9		26	20.6																															
80	27	17,378	-50.8		24	10.5	21	17,574	-60.5		26	17.5	30	17,696	-68.2		26	13.2																															
60	27	18,247	-51.6		24	11.8	21	18,838	-66.1		26	16.3	29	18,502	-66.9		26	10.4																															
40	26	19,247	-50.5		24	8.3	18	19,367	-59.8		26	13.3	29	19,442	-63.6		26	8.2																															
20	26	20,425	-52.1		24	7.1	16	20,507	-59.6		27	12.6	29	20,568	-61.1		25	6.5																															
0	26	21,871	-52.7		23	5.2	16	21,909	-60.4		27	8.9	29	21,960	-61.6		26	6.9																															
	26	23,729	-52.8		19	2.8	13	23,703	-58.8		29	6.1	29	23,770	-57.9		26	7.0																															
	26	24,415	-52.6		20	3.1	12	24,857	-58.0		30	6.3	28	24,926	-56.3		28	6.1																															
	26	26,349	-51.3		11	2.8	10	26,280	-55.0		27	7.6	27	26,356	-55.2		27	8.6																															
	15	28,419	-50.7		17	4.2	11	28,111	-55.3		30	7.2	26	28,195	-53.5		28	11.7																															
	12	30,911	-49.9		14	4.5	10	30,719	-52.6				19	30,830	-49.5		28	15.1																															

LODGE CITY, KS 927 ME										EL PASO, TX 884 MB										ELY, NV 810 MB										EMPALME, MEXICO 1013 MB										FAIRBANKS, AK 988 MB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
STC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000



## Average monthly values

[illegible]



## Average monthly values

NOVEMBER 1979

MAQUERO, MARSHALL IS.										MEDFORD, OR										MERIDA, MEXICO										MIDLAND, TX										MONTERREY, MEXICO									
1009 ME										973 MB										1014 MR										919 MB										967 MB									
576	30	1	29.3	24.7	04	2.6	30	401	3.0	1.4	34	11	30	11	20.3	19.5	05	.4	30	874	4.1	-1.1	13	.5	30	423	12.6	7.1	33	1.1																			
580	30	84	27.7	23.7	09	2.9						30	130	22.6	19.5	07	2.5																																
586	30	537	24.3	22.2	04	4.7	30	595	4.4	1.4	17	.4	30	576	20.6	16.8	10	5.0																															
590	30	1,010	21.6	16.4	10	4.5	30	1,037	5.8	-2.8	10	3.5	30	1,043	18.2	12.5	10	3.8	30	1,043	6.7	-1.5	17	2.0	30	1,055	12.3	4.2	08	1.5																			
596	30	1,505	18.9	14.6	10	4.1	30	1,505	5.1	-6.1	20	3.7	30	1,531	15.7	8.2	09	2.2	30	1,513	6.8	-4.5	22	3.5	30	1,533	10.8	7.1	16	1.0																			
600	30	2,025	16.6	11.2	04	4.2	30	1,999	2.7	-8.1	23	5.5	30	2,004	10.4	4.4	10	1.1	30	2,010	5.1	-5.7	26	4.8	30	2,038	9.0	-2.3	10	2.1																			
606	30	2,574	13.6	8.6	17	4.0	30	2,519	1.1	-11.5	24	6.7	30	2,586	11.5	-3	10	.5	30	2,571	8.8	-11.5	28	5.7	30	2,571	8.8	-5.4	23	3.1																			
610	30	3,153	10.6	5.1	10	3.5	30	3,068	-2.6	-14.4	24	7.1	30	3,160	8.6	-5.3	30	.8	30	3,090	-3	-14.4	27	9.1	30	3,138	-5.8	-11.0	26	5.3																			
616	30	3,768	7.1	1.9	10	3.1	30	3,653	-6.3	-18.6	26	7.9	30	3,770	5.5	-10.2	24	1.4	30	3,680	-3.1	-18.8	27	11.1	30	3,741	2.0	-13.9	28	7.5																			
620	30	4,423	3.4	-1.6	11	3.0	30	4,274	-10.1	-21.9	27	8.9	30	4,420	2.1	-13.8	24	1.6	30	4,410	-3.6	-21.7	26	13.0	30	4,382	-1.7	-19.6	25	9.3																			
626	30	5,125	-2.6	-6.5	13	2.0	30	4,940	-14.5	-24.8	28	12.5	30	5,117	-2.1	-19.0	26	3.0	30	4,984	-10.8	-25.6	26	14.8	30	5,069	-5.5	-24.1	25	10.3																			
630	30	5,883	-4.3	-11.0	11	1.7	30	5,655	-19.7	-31.0	28	10.3	30	5,868	-6.7	-23.6	24	5.1	30	5,979	-15.8	-30.8	26	17.7	30	5,810	-10.4	-28.5	24	13.3																			
636	30	6,707	-8.9	-16.5	14	1.4	30	6,429	-24.0	-35.4	28	13.1	28	6,683	-11.9	-28.9	24	7.5	30	6,496	-21.1	-33.6	28	20.1	30	6,613	-15.9	-32.7	26	15.6																			
640	30	7,610	-14.5	-23.3	20	1.1	30	7,274	-31.2	-41.3	29	13.6	28	7,574	-17.9	-33.5	24	10.1	30	7,355	-27.3	-38.7	27	21.9	30	7,489	-22.4	-38.8	26	19.0																			
646	30	8,612	-21.1	-30.6	22	2.4	30	8,210	-37.9	-49.9	29	16.3	28	8,562	-24.9	-39.4	25	13.5	30	8,306	-34.1	-45.7	27	25.5	30	8,458	-29.8	-44.5	26	21.5																			
650	30	9,729	-29.4	-40.1	21	3.5	30	9,253	-45.3		28	19.1	27	9,662	-33.2	-47.5	25	16.9	30	9,365	-42.1	-48.1	27	29.0	30	9,535	-38.1	-50.9	26	25.9																			
250	30	11,004	-39.4	-50.5	24	4.2	29	10,455	-53.4		29	19.7	26	10,916	-40.3		25	18.8	30	10,576	-50.1		27	31.6	30	10,766	-47.0		26	29.6																			
256	30	12,488	-52.5		22	4.1	29	11,870	-59.5		29	20.0	24	12,381	-55.0		25	21.0	29	12,008	-56.1		27	31.5	30	12,212	-56.6		26	34.3																			
260	30	13,337	-59.4		23	4.5	29	12,675	-60.9		29	19.3	24	13,223	-60.9		24	22.3	29	12,853	-59.5		27	30.1	30	13,050	-61.2		26	32.0																			
266	30	14,249	-67.3		25	4.3	29	13,608	-60.1		28	16.4	24	14,166	-62.6		25	23.2	29	13,817	-60.8		27	27.8	30	13,997	-65.3		26	30.0																			
118	30	15,363	-75.6		27	4.1	28	14,806	-59.9		29	14.2	23	15,248	-72.8		25	20.2	29	14,944	-63.5		27	25.6	30	15,098	-69.0		26	26.7																			
124	30	16,633	-81.4		31	2.2	29	16,199	-60.7		28	9.4	23	16,540	-77.3		26	12.9	29	16,308	-65.4		27	20.0	28	16,425	-72.1		26	20.3																			
700	30	17,887	-78.9		06	3.3	29	17,589	-60.6		28	7.5	20	17,827	-75.6		24	4.5	29	17,665	-65.0		26	13.7	27	17,737	-70.9		26	11.9																			
706	30	18,657	-73.8		08	7.0	29	18,421	-60.6		28	5.3	20	18,609	-71.1		18	1.3	29	18,481	-64.1		26	9.6	27	18,536	-66.9		25	6.0																			
710	30	19,948	-85.2		06	20.4	28	19,380	-56.9		29	3.7	20	19,531	-86.3		11	1.9	29	19,430	-82.1		26	8.3	27	19,476	-83.4		23	4.1																			
716	30	20,447	-64.2		09	12.7	28	20,653	-51.8		29	1.7	16	20,653	-61.8		09	4.1	29	20,562	-60.5		26	6.8	26	20,640	-60.9		24	2.3																			
40	20	22,044	-59.8		05	18.8	28	21,916	-59.0		03	1.4	19	22,048	-57.8		08	6.5	29	21,955	-59.7		26	6.8	25	21,996	-58.2		27	.9																			
30	27	23,868	-53.3		08	27.7	28	23,728	-57.1		65	28	18	23,885	-53.6		09	7.6	29	23,765	-57.4		27	4.9	21	23,816	-56.1		26	2.1																			
15	26	25,052	-49.6		04	26.3	26	24,887	-56.1		06	3.3	18	25,062	-51.8		09	6.4	28	24,919	-57.2		28	7.2	19	24,984	-53.7		26	4.7																			
20	26	26,574	-43.9		01	10.5	26	26,311	-54.7		07	4.3	16	26,525	-49.5		08	5.5	27	26,333	-55.8		28	8.2	14	26,416	-53.0		20	6.6																			
10	21	28,482	-39.4		26	5.9	22	28,165	-53.7		08	5.2	11	28,429	-47.1			18	10,828	-50.3		28	9.9	12	28,291	-50.0		27	9.1																				
10					11	35.784	-50.4												8	33,223	-46.2		28	13.8																									



## Average monthly values

NOVEMBER 1979

- 19 -

## Average monthly values

NOVEMBER

20 -



## Average monthly values

NOVEMBER 1979

- 21 -

# SOLAR RADIATION INTENSITIES

Tabulated in langleys per minute on a surface normal to the direction of the sun.

NOVEMBER 1979

Date	Sun's zenith distance									
	A.M.				*	P.M.				
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	
MAUNA LOA OBSERVATORY, HI										
Aver- ages	Air mass									
	1.34	2.01	2.01	1.34	*	1.34	2.01	2.67	3.34	
	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
6-----	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
16-----	1.21	1.30	1.39	1.51	1.61	1.50	1.39	1.30	1.22	
11-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
21-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
30-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
1-----	1.20	1.29	1.39	1.52	1.61	1.50	1.39	1.30	1.22	
2-----	1.21	1.30	1.39	1.51	1.61	1.48	1.37	1.29	1.21	
3-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
4-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
5-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
6-----	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
7-----	1.21	1.30	1.39	1.51	1.61	1.50	1.39	1.30	1.22	
8-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
9-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
10-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
11-----	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
12-----	1.21	1.30	1.39	1.51	1.61	1.50	1.39	1.30	1.22	
13-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
14-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
15-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
16-----	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
17-----	1.21	1.30	1.39	1.51	1.61	1.50	1.39	1.30	1.22	
18-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
19-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
20-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
21-----	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
22-----	1.21	1.30	1.39	1.51	1.61	1.50	1.39	1.30	1.22	
23-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
24-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
25-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
26-----	1.11	1.21	1.35	1.51	1.63	1.48	1.37	1.29	1.21	
27-----	1.21	1.30	1.39	1.51	1.61	1.50	1.39	1.30	1.22	
28-----	1.22	1.32	1.41	1.52	1.60	1.50	1.39	1.30	1.22	
29-----	1.25	1.33	1.42	1.53	1.62	1.52	1.41	1.33	1.24	
30-----	-----	-----	-----	-----	1.62	1.52	1.41	1.33	1.24	
Aver- ages	1.20	1.29	1.39	1.52	1.61	1.50	1.39	1.30	1.22	

Date	Sun's zenith distance									
	A.M.				*	P.M.				
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	
TUCSON, AZ										
Aver- ages	Air mass									
	4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
	1.98	1.09	1.19	1.37	1.47	1.35	1.18	1.07	.98	
1-----	.98	1.05	1.19	1.37	1.47	1.35	1.18	1.07	.98	
2-----	1.01	1.09	1.22	1.36	1.47	1.38	1.22	1.08	.94	
3-----	1.02	1.12	1.23	1.38	1.47	1.34	-----	-----	-----	
4-----	.98	1.10	1.21	1.35	1.46	1.33	1.18	1.06	.96	
5-----	.97	1.09	1.19	1.35	1.46	1.34	1.17	1.06	.94	
6-----	-----	-----	-----	-----	1.43	-----	-----	-----	-----	
7-----	.96	1.06	1.18	1.34	1.39	1.30	1.19	1.05	.95	
8-----	.89	1.00	1.13	1.30	1.42	1.32	1.20	1.09	.97	
9-----	1.01	1.11	-----	-----	-----	-----	-----	-----	-----	
10-----	1.01	1.11	1.27	1.43	1.52	1.43	1.28	1.16	1.03	
11-----	1.13	1.23	1.33	1.46	1.52	1.42	1.24	1.14	1.02	
12-----	-----	-----	1.24	-----	-----	-----	-----	1.10	-----	
13-----	.97	1.08	-----	-----	1.41	1.30	1.12	.98	.89	
14-----	.88	1.00	1.12	1.27	1.38	1.25	1.09	.94	.83	
15-----	.90	-----	-----	-----	-----	-----	-----	1.04	-----	
16-----	.91	.98	1.13	1.30	1.37	1.33	1.15	1.01	.88	
17-----	.99	1.10	1.21	1.36	1.53	1.44	1.29	1.16	1.05	
18-----	.99	1.11	1.26	1.41	1.46	1.35	1.19	1.03	.92	
19-----	.94	1.05	1.20	1.35	1.46	1.40	1.29	1.18	1.08	
20-----	-----	-----	-----	-----	-----	-----	-----	-----	1.00	
21-----	1.05	1.15	1.25	1.40	1.48	1.38	1.24	1.11	1.01	
22-----	1.02	1.12	1.25	-----	1.46	1.38	1.24	1.12	1.01	
23-----	1.02	-----	-----	-----	1.46	-----	1.25	1.12	1.00	
24-----	1.02	1.12	1.24	1.37	1.44	1.36	1.18	1.07	.96	
25-----	.92	1.01	1.17	1.35	1.43	1.34	1.20	1.07	-----	
26-----	.97	1.08	1.21	1.38	1.41	1.33	-----	-----	-----	
27-----	-----	1.07	1.21	-----	-----	1.33	1.20	1.04	.89	
Aver- ages	.98	1.08	1.21	1.36	1.45	1.35	1.20	1.08	.97	

## NET RADIATION

Net radiation in langleys per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langleys, . .	- 11	- 10	- 18	- 12	- 11	- 13	- 13	- 13	- 10	- 17	- 12	- 8	- 11	M	- 13	- 12	- 3	0	28	- 8	- 8	- 6	1	2	1	7	- 2	- 1	1	4		- 58

# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

Y Peak Gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $9 \times \frac{5}{9} \times ^\circ\text{C} + 32$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

o Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

⊕ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

± No Storm Data Report received for this State.

<> Report incomplete.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

**SOLAR RADIATION INTENSITIES:** Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

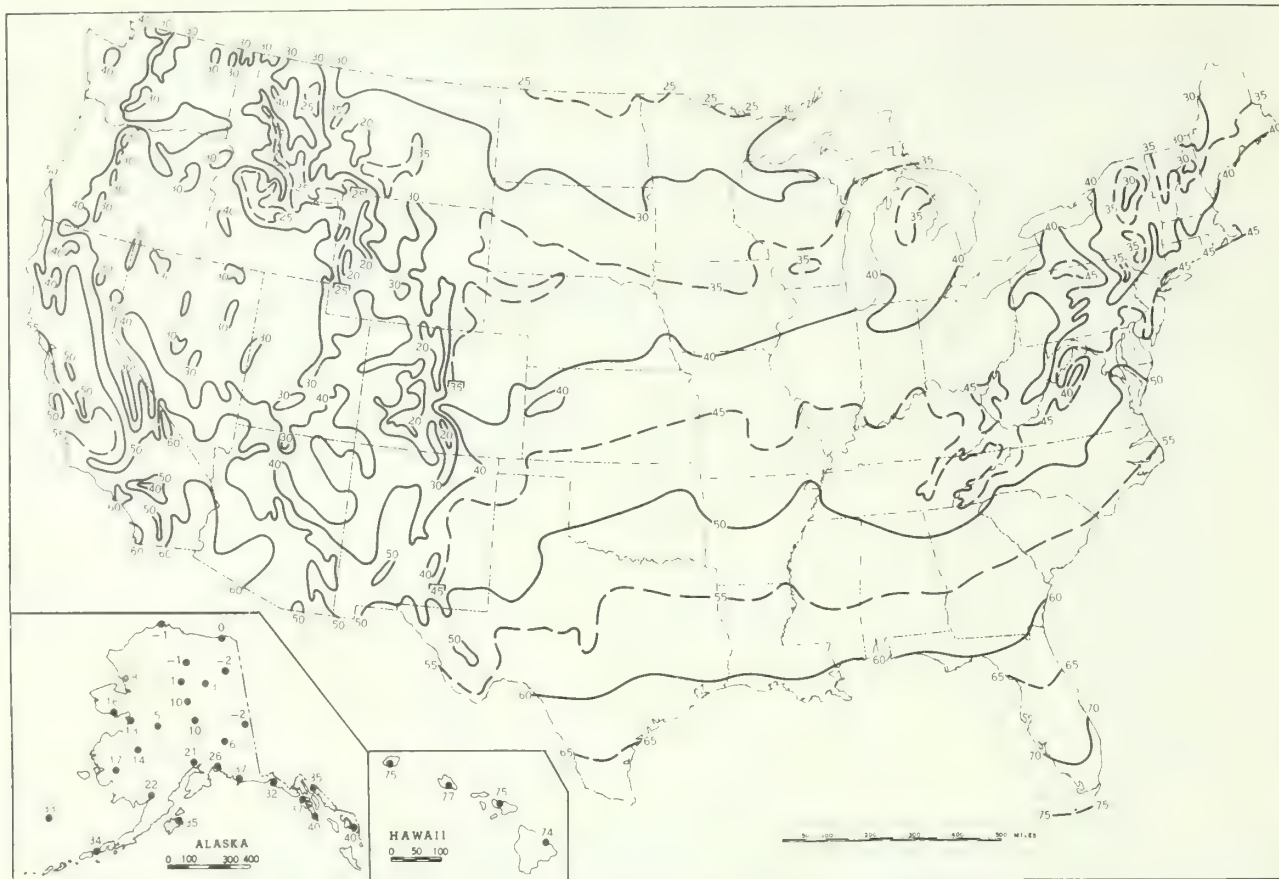
( )	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	CF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

**NET RADIATION:** The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

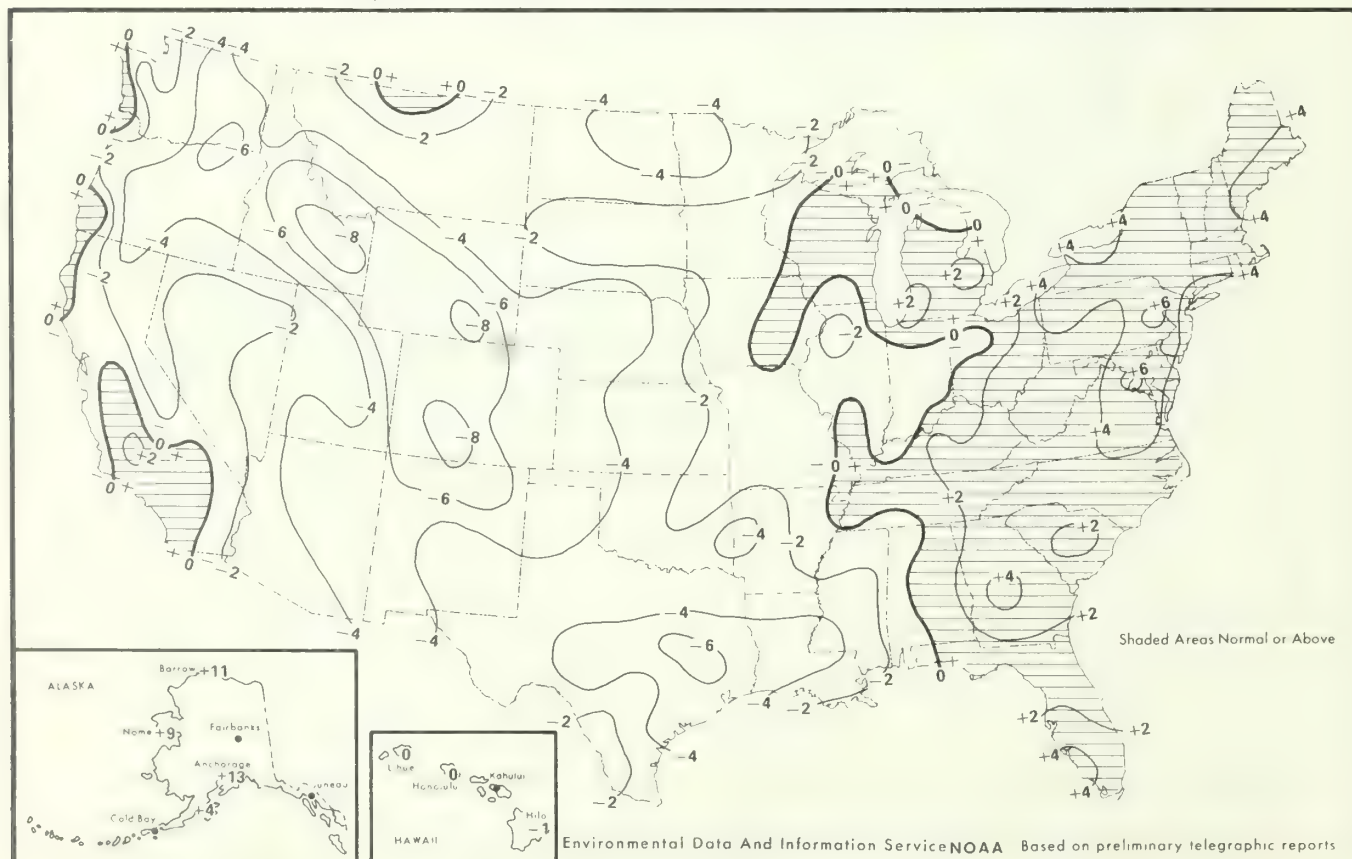
These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.



Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), November.

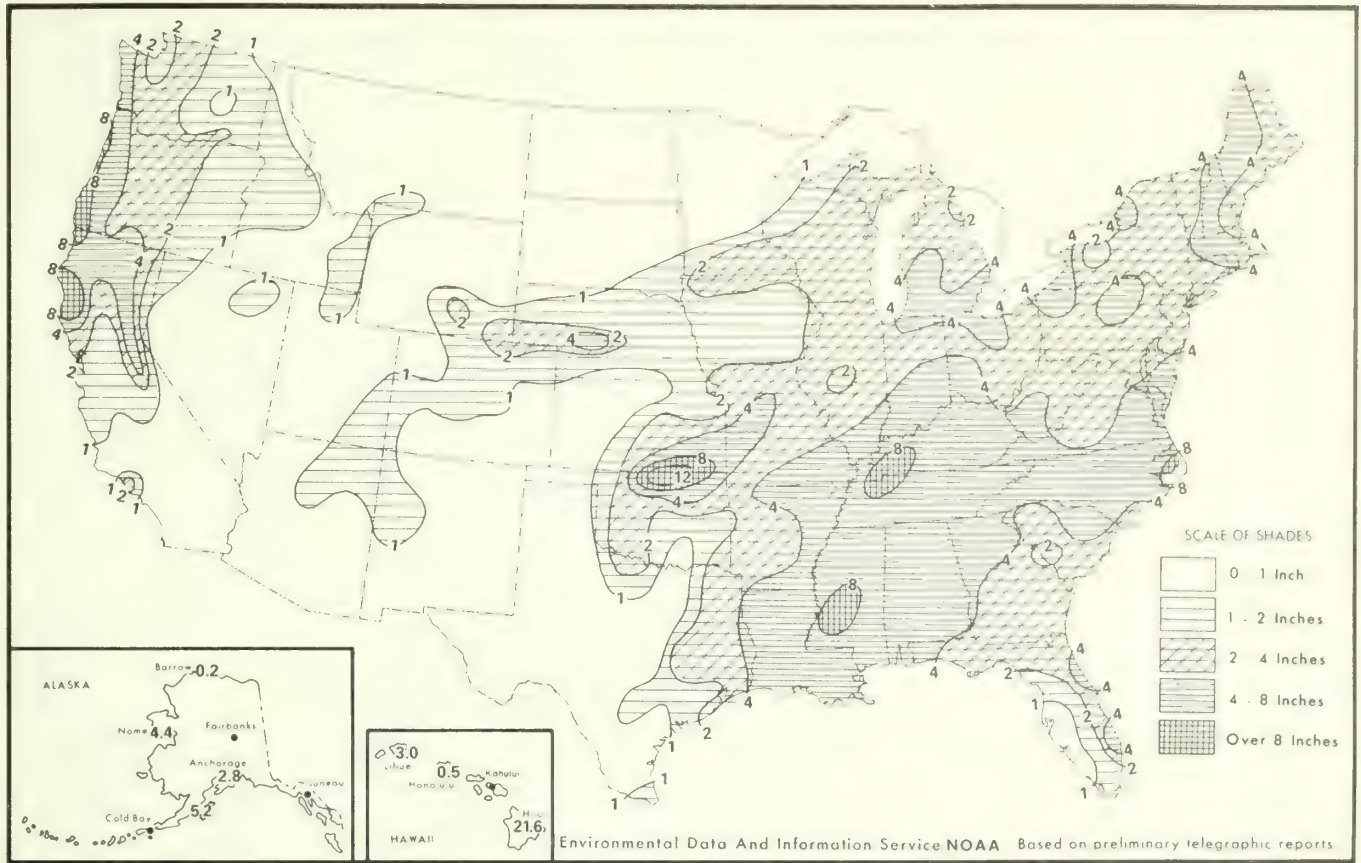


B. Temperature Departure from 30 - Year Mean (°F 1941-70), November 1979



Environmental Data And Information Service NOAA Based on preliminary telegraphic reports

Chart II. A. Total Precipitation (Inches), November 1979



B. Percentage of Normal Precipitation, November 1979

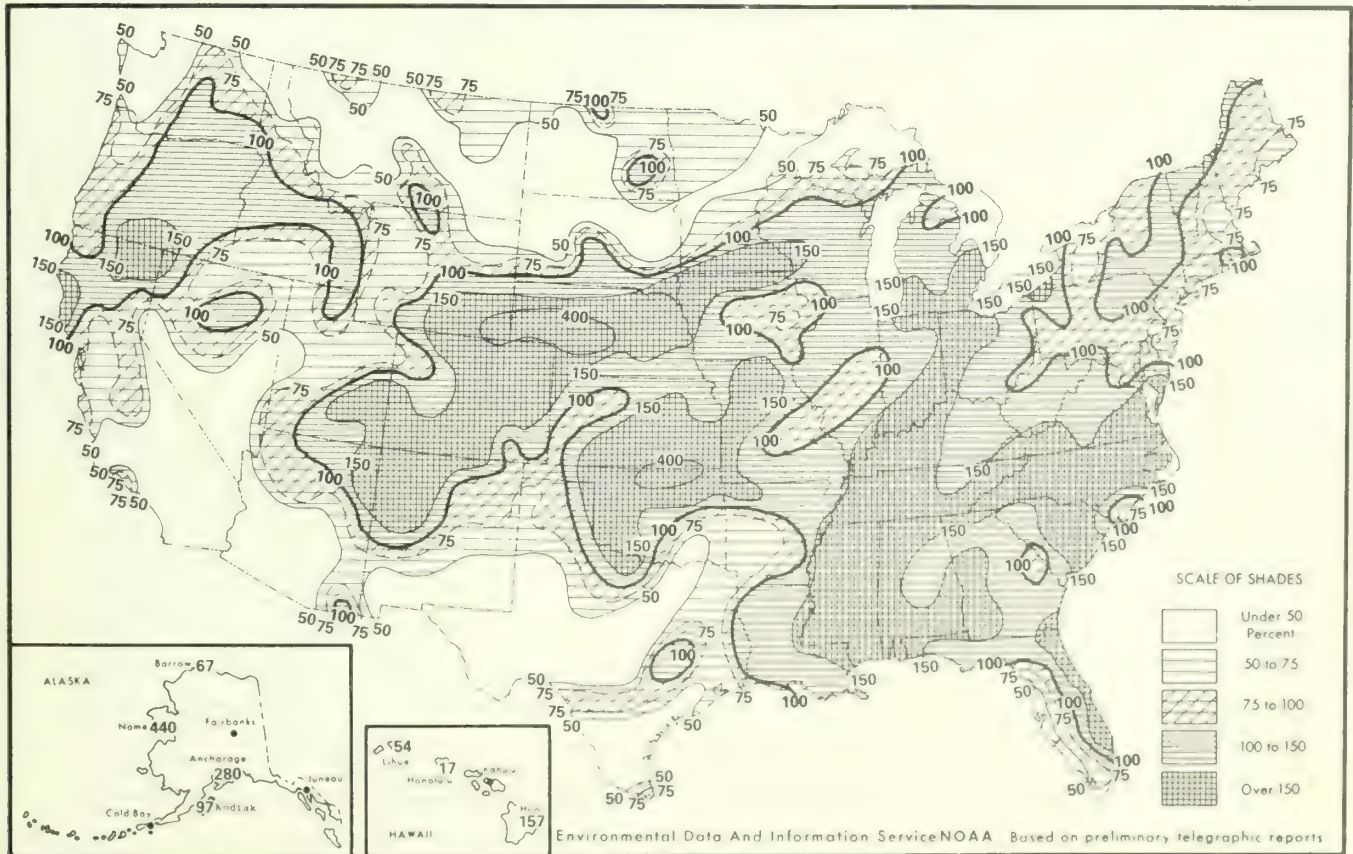
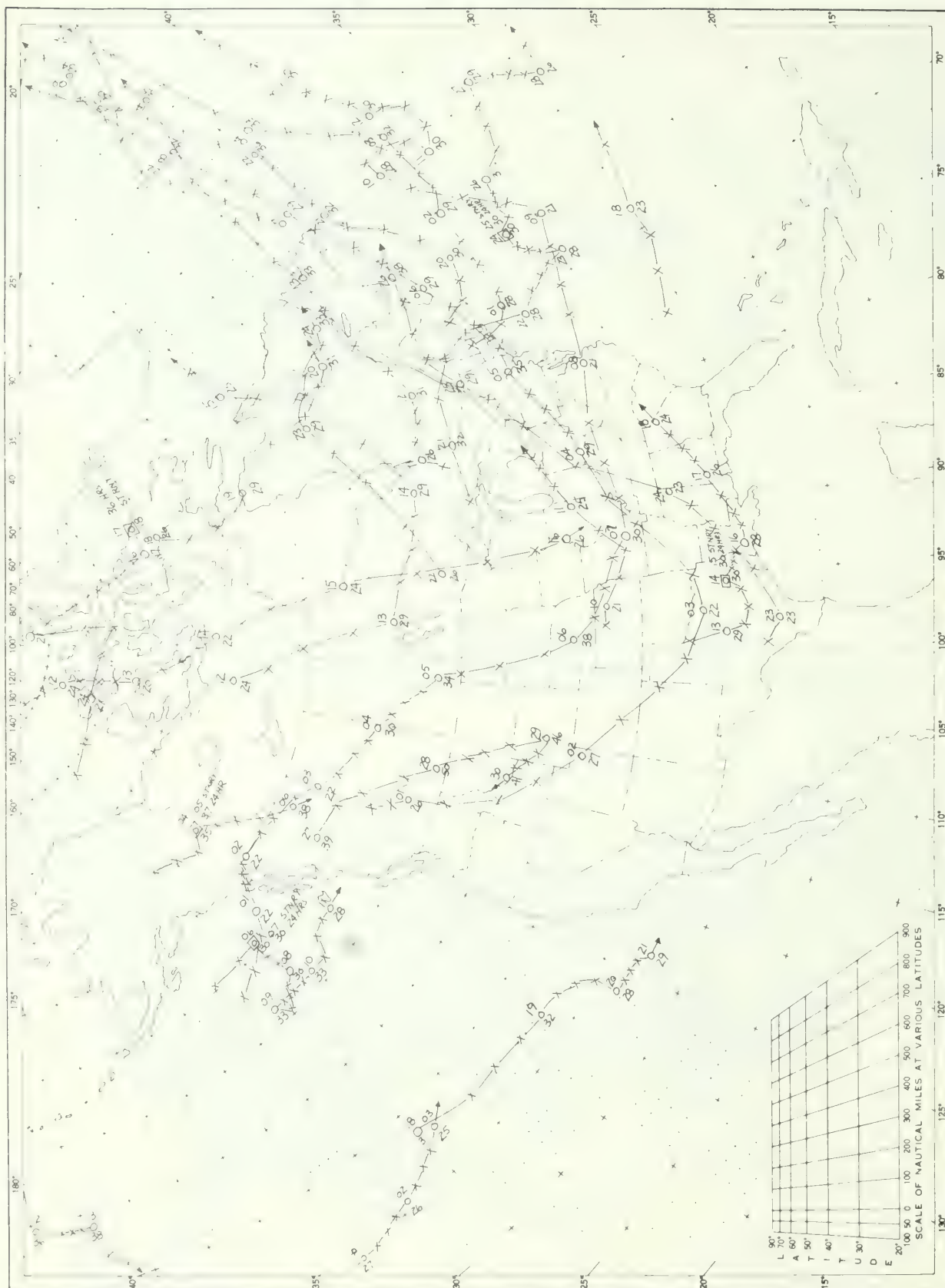




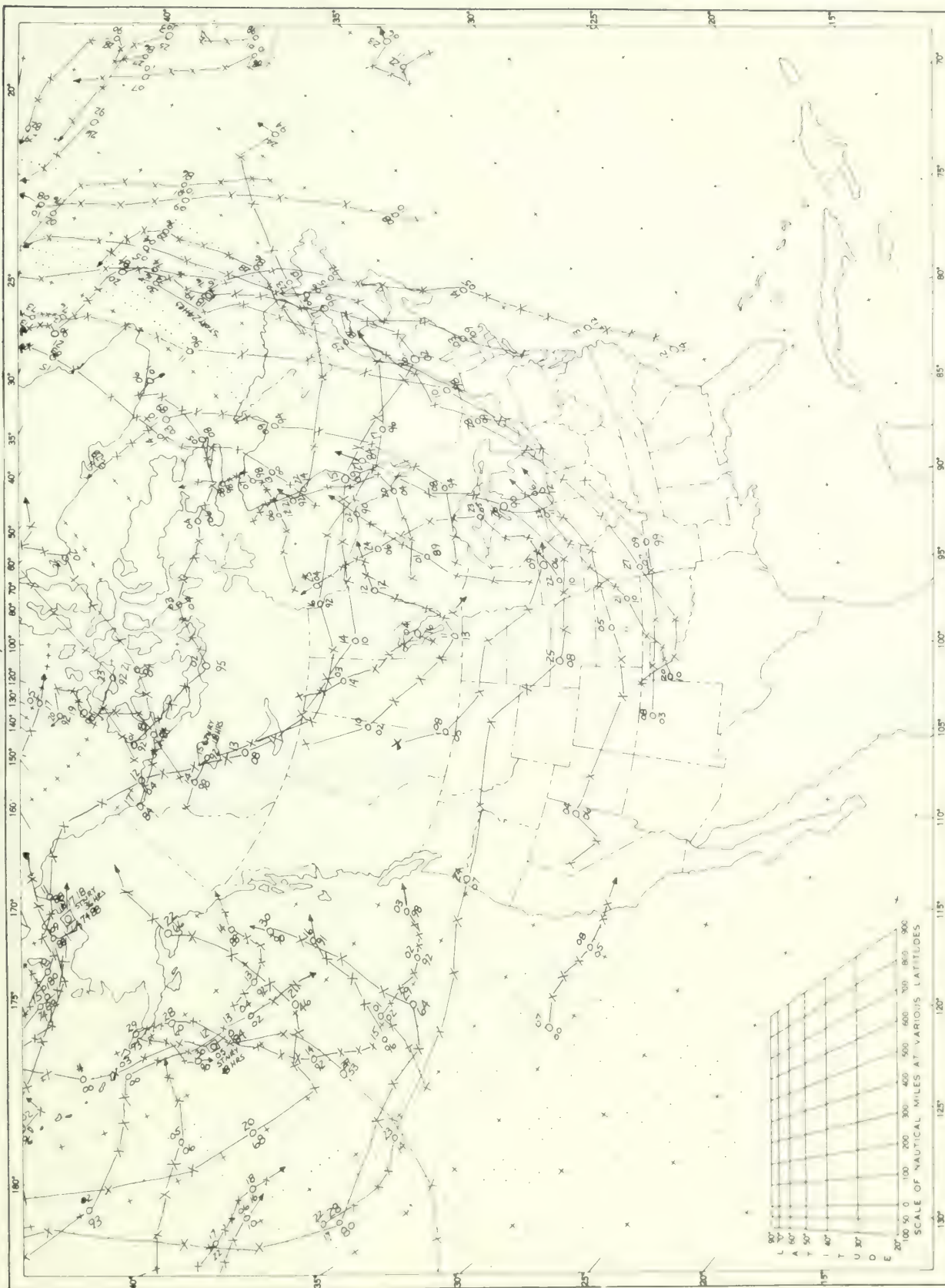
Chart III Tracks of Centers of Anticyclones at Sea Level, November 1979



Circle indicates position of center at 700 m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
 X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.



Chart IV. Tracks of Centers of Cyclones at Sea Level, November 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar. X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



"I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND IS COMPILED FROM INFORMATION RECEIVED AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801."

*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER



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NOTE: Late reports and corrections will be carried in the June and December issues of this publication. An explanatory page "Description of Charts" will be carried in the January and July issues.

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

DECEMBER 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lyle Denny, Climatologist  
Environmental Data and Information Service, NOAA

**HIGHLIGHTS:** The heaviest precipitation areas ranged from Texas through the Great Lakes, from central California through Washington, and in the southeast. It was late in the month when heavy snow fell in the Cascades, the Sierras, and the central Rockies; the deep snow was most welcome in those snow-free areas. The dry parts of western Texas were soaked by more than 2.5 inches of moisture, generally in the form of snow. Much of the Nation recorded less than the normal amount of precipitation. Temperatures averaged well above normal in much of the Nation. Parts of the northern Plains were as much as 10° warmer than normal.

Early in December, a low pressure system moving through the Great Lakes deposited large amounts of snow. The areas along the southern shores of the eastern Lakes accumulated over 20 inches in the first 2 days of the month.

The week of the 3d-9th was unusually warm in the west. A high pressure system centered in the Rockies, brought warm breezes through California from the south and colder air into the Plains from the north. Contrasting temperatures showed record low readings in the Plains and the south and record highs in the west. Precipitation during the period was confined to heavy rains in the southeast with lesser amounts all along the East Coast, snow in the Great Lakes area, and heavy rain in the Pacific Northwest.

In the following week, the 10th-16th, the warm weather moved to the eastern United States. Readings in the 60°s were recorded in the Great Lakes area and Maine. Later in the week, a mass of cold air dropped southward through Montana plunging temperatures from record highs to record lows.

Rain amounts increased in the Pacific Northwest during this week. Amounts of 5 or more inches resulted

in flooding in Washington from the Cascades to the coast. Elsewhere, a frontal system moving eastward encountered moisture from southern New Mexico north-eastward, and rain or snow fell all along the front as it tracked eastward. The previously dry areas in southern New Mexico and western Texas got up to 2 inches of moisture, mostly in the form of snow. The rain became heavier as the front moved further into the moist air. From 2 to 5 inches fell from the lower Mississippi Valley through Kentucky, and substantial amounts extended into Pennsylvania.

Precipitation was more widespread in the third week of the month, the 17th-23d. The moisture in the west spread to southern California and into the Rockies. Cooler air at the end of the week allowed snow to accumulate in the mountains. In the east, after a cold beginning, temperatures warmed by week's end and heavy showers, thunderstorms, and even tornadoes occurred in the lower Mississippi Valley on the 22d.

The last week of the month and year was a wet one in most of the Nation. Snow fell in the Cascades, the Sierras, the central Rockies, and the west central Plains and was welcome in these snowless areas. However, snow was scarce elsewhere. Beneficial rain fell on central Texas, Oklahoma, and eastern Kansas, and rainy weather enveloped the region from the Mississippi River to the east coast. Most of the Nation was warmer than normal. Average temperatures for the week were as much as 15° warmer than normal in the northern Plains. However, freezing temperatures did reach as far south as northern Florida in the latter part of the week.

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES

DECEMBER 1979

STATE	Temperature						Precipitation				
	Monthly extremes						Monthly extremes				
	Station	Highest °F	Date	Station	Lowest °F	Date	Station	Greatest In.	Station	Least In.	
Alabama	Montevalle	79	11	Saint Bernard	10	18	Evergreen	5.00	Hightower		.79
Alaska	Redoubt	65	28	Allakaket	-59	24	Pelican	26.81	Lonely	D	.01
Arizona	Chino	80	3	Hawley Lake	-10	29	Tonto Creek F H 2	2.54	4 Stations		.00
Arkansas	Clinton	79	12	3 Stations	1	18+	Amity 1 NE	7.34	Greenforest		.91
California	3 Stations	95	5	Bridgeport	-20	28	Lake Spaulding	15.31	10 Stations		.00
Colorado	Cherish	76	5+	Gayler Park	-31	29	Wolf Creek Pass 1 E	5.44	2 Stations		.10
Connecticut	West Thompson Lake	67	14	2 Stations	1	19+	Norfolk 2 SW	3.30	West Thompson Lake		1.94
Delaware	Delmar	68	12	Milford 2 WSW	17	18	Georgetown 5 SW	1.74	Middletown 1 WSW		1.37
Florida	Fort Pierce	87	24+	Smith Creek	17	1	St Augustine WFOY	7.28	Deland 1 SSE		.46
Georgia	2 Stations	82	13	Blairsville Exp Station	8	3	Valdosta 3 E	6.61	Atlanta Bolton		.67
Hawaii	1 Station, 10 Hours 98.1	91	12	Mauna Kea Obs 111.2	20	27	Manoa Lyon Arboretum	16.25	2 Stations		.00
Idaho	1 Station	64	17+	Island Park Dam	-30	11	Sandpoint KSPT	D 7.19	Leadore 2		T
Illinois	Cahokia	70	6	Rochelle	-8	17	Anna 1 E	4.08	Moweaqua		.55
Indiana	2 Stations	68	12+	Kewanna 7 NW	-5	18	Crane Naval Depot	4.13	Hobart		1.01
Iowa	6 Stations	63	10+	Esternville 2 N	-12	16	De Witt	2.82	2 Stations		T
Kansas	Syracuse 2 W	78	4	Hunter	-7	17	Wichita WSO AP	1.99	8 Stations		.00
Kentucky	6 Stations	70	13+	3 Stations	8	17+	Caneyville	7.42	Elkhorn City		1.65
Louisiana	3 Stations	81	13+	Converse	9	18	LSU Dean Lee Exp Station	9.01	Gonzales		2.21
Maine	Saco	62	12	Van Buren 2	-25	21+	Woodland	3.67	Long Falls Dam		1.64
Maryland	Cumberland 2	73	11	Oakland 1 SE	-2	3	Mc Henry 2 NW	2.85	Assateague State Park		.41
Massachusetts	Chester 2	72	12	Chester 2	-13	20	Amherst	4.00	Rockport 1 ESE		.95
Michigan	2 Stations	61	11	Crystal Falls 6 NE	-15	17	South Haven Exp Farm	3.88	Baraga 5 WNW		.36
Minnesota	2 Stations	77	11	Tower 3 S	-30	12	Winona	1.02	11 Stations		T
Mississippi	2 Stations	79	1+	2 Stations	10	18	Natchez	6.42	Crawford 5 W		2.12
Missouri	Iota	74	6	Cole Camp 9 SE	-6	17	Wappapello Dam	4.67	2 Stations		T
Montana	2 Stations	72	5	Ingomar 11 NE	41	16	Many Glacier	10.79	15 Stations		T
Nebraska	Beaver City	75	5	Nenzel 20 S	-20	16	Ravena	.99	Merriman		.00
Nevada	Sunrise Manr Las Vegas	80	5	Mountain City Ranger Station	-15	23	Glenbrook	D 5.73	6 Stations		.00
New Hampshire	Durham	68	1	Mount Washington	-25	17	Pinkham Notch	3.51	Milford		1.16
New Jersey	2 Stations	71	14	2 Stations	-1	22+	Tuckerton	3.59	Shiloh		1.35
New Mexico	2 Stations	79	10+	Fort Nest	-20	29	El Morro Natl Mon	1.93	2 Stations		.00
New York	3 Stations	68	14+	Old Forge	-18	19	West Seneca 1 NE	4.65	Watertown FAA AP		.32
North Carolina	3 Stations	76	25+	2 Stations	2	3+	Cape Hatteras WSO	5.19	Louisburg		.58
North Dakota	3 Stations	67	5+	2 Stations	-28	16	Forbes 9 NNW	.90	2 Stations		.00
Ohio	Perry South	70	12	Plymouth 2 WSW	-2	3	Dorset	7.16	Lancaster 2 NW		1.25
Oklahoma	2 Stations	78	12+	Mannford 6 NW	-1	17	Valliant 3 W	7.13	4 Stations		T
Oregon	Silver Creek Falls	75	17	2 Stations	-3	28+	Nehalem 9 NE	22.61	Christmas Valley		T
Pennsylvania	Mercersburg 1 E	70	14	Bakerstown 1 WSW	1	18	Erie WSO AP	4.90	Morgantown		.61
Puerto Rico	7 Stations	93	18+	Adjuntas Substation	46	26	Pico Del Este	11.35	Santa Rita		.00
Rhode Island	Providence WSO AP	69	1	North Foster 1 E	1	19	Newport	.84	Kingston		1.54
South Carolina	Summerville 4 NW	61	13	Caesars Head	11	17	Walterboro 2 SW	5.98	Woodruff 5 NW		.95
South Dakota	2 Stations	74	14	Deerfield 4 NW	-30	16	Deerfield 4 NW	.95	2 Stations		.00
Tennessee	Erwin 2 SW	75	14	2 Stations	6	18+	Savannah	7.34	Erwin 2 SW		1.46
Texas	3 Stations	87	12	Lipscomb	2	17	Bronson	7.41	7 Stations		.00
Utah	Garrison	72	4	Scofield	-21	12	Monticello	1.75	3 Stations		.00
Vermont	Ball Mountain Lake	63	13	Enosburg Falls	-20	19	Mount Mansfield	D 5.26	Bristol 5 NNW		.92
Virginia	Colonial Beach	74	24	Mc Lake Biological Station	1	17	Pennington Gap	3.42	2 Stations		.45
Virgin Islands	Truman Field FAA AP	89	24+	Dorothea AES	61	26	Ham Bluff L H Station	6.29	Cruz Bay		1.66
Washington	Nod Mountain Fire	65	18	Chesaw 4 NNW	5	15	Forks 1 E	40.12	Richland		.38
West Virginia	Martinsburg FAA AP	74	12	Canaan Valley	-3	3	Corton	3.92	Cacapon State Park 2		.73
Wisconsin	2 Stations	58	10	3 Stations	-15	17+	West Allis	2.66	2 Stations		.08
Wyoming	2 Stations	69	4	Recluse 14 NNW	-32	16	Cheyenne WSO AP	1.50	8 Stations		T



## DEC 28 1979

## FEBRUARY 1979

- 6 -



# CLIMATOLOGICAL DATA

METRIC UNITS

DECEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature						Precipitation						Wind				No. of days (sunrise to sunset)			Possible sunshine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Station	Sea level	°C	°F	Average maximum	Average minimum	Departure from normal	Highest	Date	Lowest	Date	No. of days	Average dew point	mm	Total	Greatest in 24 hours	25 mm. or more	With thunderstorms					Snow, ice pellets	Total	mm	Maximum depth on ground	Residual speed	Residual direction	Speed	Direction	Date																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		mb	°C	°F	°C	°F	°C	°F	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C



DECEMBER 1979

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## DECEMBER 1979

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## CLIMATOLOGICAL DATA

METRIC UNITS

DECEMBER 1979

State and Station	Elevation (ground)	Pressure		Temperature										Precipitation						Wind				No. of days (sunrise to sunset)						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Lowest	Date	No. of days		Average dew point	Average relative humidity	Total	Departure from normal	No. of days		Snow, ice pellets	Resultant speed	Resultant direction	Speed	Direction							
											Max 32.2 °C or above	Min. 0 °C or lower					Greatest in 24 hours	25 mm. or more						With thunderstorms	Maximum depth on ground					
																										mm	mm	mm	mm	mm
WASHINGTON	122	1000.0	1016.6	9.4	4.1	6.7	2.0	13.3 17	-1.1 11		0	6	3.3	80	301	150	66	22	0	30	25	2.9	16	14.3	SE 23	2	27	8.9	15	
SEATTLE-TACOMA	174	933.3	1018.7	4.9	-1.4	1.8	3.4	12.2 18	-7.2 28		0	21	-2.2	75	49	-11	15	16	0	264	102	2.3	20	19.7	SW 14	1	3	9.1	12	
SPokane	714	933.3	1018.7	4.9	-1.4	1.8	3.4	12.2 18	-7.2 28		0	21	-2.2	75	49	-11	15	16	0	264	102	2.3	20	19.7	SW 14	1	3	9.1	12	
STRAPE PASS R	1206	875.1		1.0	-1.7	-1.3	2.0	16.7 8	-10.4 16		0	25			482	118	115	26	1946	864					0	1	30	9.7	18	
WALLA WALLA U	569	914.4		8.5	-1.4	5.1	2.0	16.7 8	-10.4 16		0	13			34	-16	10	14	20	51		15.2	SE 23		0	5	26	9.1	18	
YAKIMA	521	980.4	1020.0	5.5	-2.4	1.6	1.9	13.9 14+	-8.9 26		0	28	-1.7	82	34	5	9	15	0	290	152	1.2	27	13.0	27 9	0	3	25	8.5	18
WEST INDIES																														
SAN JUAN P.P.	4	1113.5	1015.9	28.8	23.1	25.9	1.1	30.6 7	20.6 26		0	0	21.1	78	97	-23	31	15	1	0	0	2.3	7	11.2	E 24	6	21	4	5.3	74
WEST VIRGINIA																														
RECALEY	763	937.9	1022.3	7.9	-3.3	2.3	2.0	18.3 12	-13.9 18+		0	25	-4.4	67	38	-47	19	9	0	119	51	1.7	24	11.2	30 7	11	6	14	5.8	
CHARLESTON	117	964.5	1022.7	9.2	-2.2	3.5	1.2	21.1 11	-11.1 18		0	21	-3.3	67	71	-9	43	10	0	10	10	1.4	25	10.3	27 7+	12	4	15	5.8	
ELKINS	594	949.2		7.5	-5.3	1.1	1.3	18.3 11	-16.1 18		0	26			59	-23	24	13	259	76					10	5	16	6.4		
HUNTINGTON	252	991.2	1022.0	9.1	-1.3	3.9	1.7	21.1 11	-10.0 3		0	21	-3.9	60	70	-5	44	10	0	8	7	1.1	25	12.5	30 7	10	5	16	6.2	42
PARKERSBURG	187			7.1	-1.4	2.8	1.1	18.9 11	-9.4 3		0	22			47	-23	27	6	13	7		18.3	SW 7							
WISCONSIN																														
GREEN BAY	208	991.9	1018.6	2.2	-7.0	-2.4	3.8	10.0 5	-21.7 17		0	29	-5.6	79	33	0	11	6	0	36	25	1.9	26	12.5	SW 15	10	3	18	6.3	52
LA CROSSE	198	984.9	1020.3	2.4	-6.6	-2.1	3.6	13.3 10	-18.3 17		0	29	-5.0	81	17	-9		4	0	7	0	0.8	25			5	9	17	7.0	59
MADISON	262	984.8	1019.4	3.7	-7.2	-1.8	3.8	12.8 5	-19.4 17+		0	29	-5.0	80	49	12	26	7	0	33	25	1.7	26	13.4	NW 16	5	9	17	6.7	45
MILWAUKEE	205	997.9	1019.0	4.1	-4.7	-0.3	4.0	12.8 11	-18.9 17		0	27	-3.9	78	58	13	47	6	0	15		2.9	27	23.2	N 24	7	6	18	6.7	45
MINNESOTA																														
ST. CLOUD	167	838.5	1021.3	3.6	-7.3	-1.8	1.4	10.6 18	-23.9 11		0	27	-6.9	60	9	-3	4	6	0	224	127	5.8	22	20.6	22 24	8	10	13	6.1	
CASPER	1867	812.1	1019.8	6.8	-5.9	0.5	2.1	14.4 19	-17.8 30+		0	27	-10.0	49	38	29	30	6	0	396	432	4.2	28	25.0	W 4	9	11	11	5.7	57
CHEYENNE	1806	837.3	1027.0	2.8	-10.7	-3.9	1.1	16.7 4	-20.0 31		0	31	-10.0	66	28	16	24	6	0	518	381	0.9	23	27.3	SW 4	8	6	17	6.2	49
LANCASTER	1704	874.8	1019.6	8.2	-9.3	-0.5	3.1	20.6 4	-26.4 16		0	30	-8.3	65	6	-12	3	5	0	107	51	1.3	27	21.6	W 4	12	6	13	5.6	61
SHERIDAN																														

## HEATING DEGREE DAYS

(Base 65°F.)

DECEMBER 1979

State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month	State and Station	Current season		Normals July through this month
	This month	Period July through this month			This month	Period July through this month			This month	Period July through this month			This month	Period July through this month	
ALABAMA				IDAHO				NEBRASKA				TENNESSEE			
ALBUQUERQUE	978	2327	2457	BOISE	699	2161	2321	GRAND ISLAND	978	2327	2457	BRISTOL	804	1639	1711
ALBUQUERQUE	978	2327	2457	LEWISTON	774	1900	2221	LINCOLN	1007	2208	2361	CHATTANOOGA	728	1333	1412
ALBUQUERQUE	978	2327	2457	PUCATELLA	1170	2669	2787	NORFOLK	1346	2503	2663	KNOXVILLE	700	1327	1388
ALBUQUERQUE	978	2327	2457					NORTH PLATTE	957	2340	2643	MEMPHIS	598	1100	1263
ALBUQUERQUE	978	2327	2457	ILLINOIS				OMAHA (EPPEL)	1070			NASHVILLE	723	1395	1451
ALBUQUERQUE	978	2327	2457	CAIRO U	727	1361	1472	OMAHA (NORTH)	1016	2274	2489	OAK RIDGE	783	1564	1573
ALBUQUERQUE	978	2327	2457	CHICAGO O HARE	947	2168	2424	SCOTTSDUFF	946	2358	2650				
ALBUQUERQUE	978	2327	2457	CHICAGO MIDWAY	951	2120	2751	VALENTINE	1010	2643	2813	TEXAS			
ALBUQUERQUE	978	2327	2457	MOLINE	1027	2395	2398					ABILENE	530	1002	1002
ALBUQUERQUE	978	2327	2457	PEORIA	1022	2316	2305	NEVADA				AMARILLO	806	1749	1609
ALBUQUERQUE	978	2327	2457	ROCKFORD	1110	2581	2578	ELKO	1072	2321	3014	AUSTIN	372	666	643
ALBUQUERQUE	978	2327	2457	SPRINGFIELD	896	1964	2161	ELY	1035	2745	3072	BROWNSVILLE	204	303	185
ALBUQUERQUE	978	2327	2457					LAS VEGAS	946	985	1045	CORPUS CHRISTI	233	370	307
ALBUQUERQUE	978	2327	2457	INDIANA				PERO	908	2145	2430	DALLAS FT WORTH	478	882	877
ALBUQUERQUE	978	2327	2457	EVANSVILLE	813	1751	1794	WINNEMUCCA	988	2320	2669	DEL RIO	346	589	612
ALBUQUERQUE	978	2327	2457	FORT WAYNE	1027	2366	2357					EL PASO	670	1255	1133
ALBUQUERQUE	978	2327	2457	INDIANAPOLIS	929	2121	2126	NEW HAMPSHIRE				GALVESTON	302	509	379
ALBUQUERQUE	978	2327	2457	SOUTH BEND	928	2046	2349	CONCORD	1098	2615	2786	HOUSTON INTERCON	389	713	512
ALBUQUERQUE	978	2327	2457					MT WASHINGTON OBS	1657	5684	5884	LUBBOCK	690	1373	1391
ALBUQUERQUE	978	2327	2457	IOWA								MIDLAND	566	1091	1029
ALBUQUERQUE	978	2327	2457	BURLINGTON	1004	2197	2313	NEW JERSEY				PORT ARTHUR	382	683	561
ALBUQUERQUE	978	2327	2457	DES MOINES	1031	2239	2517	ATLANTIC CITY	830	1759	1794	SAN ANGELO	542	1029	889
ALBUQUERQUE	978	2327	2457	ELUGUE	1067	2550	2769	ATLANTIC CITY U	703	1422	1566	SAN ANTONIO	306	564	584
ALBUQUERQUE	978	2327	2457	ST LOUIS	1075	2549	2649	NEWARK	763	1479	1787	VICTORIA	329	592	423
ALBUQUERQUE	978	2327	2457	WATERLOO	1171	2522	2835	TRENTON U	788	1596	1785	WACO	483	910	763
ALBUQUERQUE	978	2327	2457									WICHITA FALLS	563	1084	1106
ALBUQUERQUE	978	2327	2457	KANSAS				NEW MEXICO							
ALBUQUERQUE	978	2327	2457	CONCORDIA	904	1968	2132	ALBUQUERQUE	840	1726	1733	UTAH			
ALBUQUERQUE	978	2327	2457	DODGE CITY	940	2027	1934	CLAYTON	836	2005	2005	MILFORD	1050	2405	2529
ALBUQUERQUE	978	2327	2457	GOODYEAR	907	2023	2372	POSWELL	748	1492	1552	SALT LAKE CITY	987	2110	2365
ALBUQUERQUE	978	2327	2457	TOPEKA	908	1965	2006								
ALBUQUERQUE	978	2327	2457	WICHITA	876	1694	1795	NEW YORK				VERMONT			
ALBUQUERQUE	978	2327	2457					ALBANY	1036	2342	2562	BURLINGTON	1107	2639	2916
ALBUQUERQUE	978	2327	2457	KENTUCKY				BINGHAMTON	1040	2545	2721				
ALBUQUERQUE	978	2327	2457	COWLING	887	1924	1921	BUFFALO	973	2249	2508	VIRGINIA			
ALBUQUERQUE	978	2327	2457	LEXINGTON	833	1759	1817	NEW YORK U	734	1406	1681	LYNCHBURG	746	1543	1650
ALBUQUERQUE	978	2327	2457	LOUISVILLE	794	1589	1767	NEW YORK KENNEDY	827	1686	1777	NORFOLK	616	1078	1256
ALBUQUERQUE	978	2327	2457					NEW YORK LA GUARDIA	802	1576	1696	RICHMOND	698	1301	1510
ALBUQUERQUE	978	2327	2457	LOUISIANA				ROCHESTER	1006	2334	2432	ROANOKE	738	1586	1672
ALBUQUERQUE	978	2327	2457	BATON ROUGE	465	817	643	SYRACUSE	971	2236	2405	WALLOPS ISLAND	671	1230	1470
ALBUQUERQUE	978	2327	2457	LAKE CHARLES	420	709	551					WASHINGTON			
ALBUQUERQUE	978	2327	2457	NEW ORLEANS	396	539	546	NORTH CAROLINA				OLYMPIA	726	2162	2278
ALBUQUERQUE	978	2327	2457	SHREVEPORT	498	916	838	ASHEVILLE	707	1523	1695	QUILLAYUTE	628	2076	2461
ALBUQUERQUE	978	2327	2457					CAPE HATTERAS P	487	807	889	SEATTLE	620	1628	1896
ALBUQUERQUE	978	2327	2457	MAINE				CHARLOTTE	455	1274	1280	SEATTLE-TACOMA	642	1750	2101
ALBUQUERQUE	978	2327	2457	CARIBOU	1413	3402	3714	GREENSBORO	719	1363	1521	SPOKANE	918	2506	2798
ALBUQUERQUE	978	2327	2457	PORTLAND	1083	2637	2785	PALEIGH	661	1264	1386	STAMPEDE PASS R	1093	3683	3936
ALBUQUERQUE	978	2327	2457					WILMINGTON	525	876	911	WALLA WALLA U	737	1805	1956
ALBUQUERQUE	978	2327	2457	MARYLAND								YAKIMA	929	2311	2509
ALBUQUERQUE	978	2327	2457	BALTIMORE	757	1520	1765	NORTH DAKOTA							
ALBUQUERQUE	978	2327	2457					PISMARCK	1273	3322	3483	WEST VIRGINIA			
ALBUQUERQUE	978	2327	2457	MASSACHUSETTS				FARGO	1367	3452	3542	BECKLEY	890	2130	2226
ALBUQUERQUE	978	2327	2457	BLUE HILL OBS R	949	2134	2272	WILLISTON	1272	3216	3574	CHARLESTON	820	1724	1794
ALBUQUERQUE	978	2327	2457	BOSTON	873	1844	1971					ELKINS	954	2312	2379
ALBUQUERQUE	978	2327	2457	WORCESTER	1019	2391	2518	OHIO				HUNTINGTON	798	1647	1795
ALBUQUERQUE	978	2327	2457					AKRON	981	2270	2328	PARKERSBURG U	858	1786	1841
ALBUQUERQUE	978	2327	2457	MICHIGAN				CINCINNATI ABBE OB	850	1834	1843				
ALBUQUERQUE	978	2327	2457	ALPENA	1128	3056	3192	CLEVELAND	967	2158	2253	WISCONSIN			
ALBUQUERQUE	978	2327	2457	DETROIT	1014	2415	2372	COLUMBUS	920	2038	2188	GREEN BAY	1151	2885	3051
ALBUQUERQUE	978	2327	2457	DETROIT METRO	1014	2415	2372	DAYTON	923	2090	2130	LA CROSSE	1133	2716	2805
ALBUQUERQUE	978	2327	2457	FLINT	1044	2417	2615	MANSFIELD	1018	2385	2171	MADISON	1112	2760	2945
ALBUQUERQUE	978	2327	2457	GRAND RAPIDS	944	2293	2513	TOLEDO	1009	2343	2410	MILWAUKEE	1036	2384	2751
ALBUQUERQUE	978	2327	2457	HOUGHTON LAKE	1153	2996	3172								
ALBUQUERQUE	978	2327	2457	LANSING	1036	2519	2564	OKLAHOMA							
ALBUQUERQUE	978	2327	2457	MUSKOGEE	1039	2515	2516	OKLAHOMA CITY	669	1314	1409	WYOMING			
ALBUQUERQUE	978	2327	2457	SAULT STE MARIE	1263	3446	3453	TULSA	632	1247	1402	CASPER	1116	2947	2931
ALBUQUERQUE	978	2327	2457									CHEYENNE	990	2685	2803
ALBUQUERQUE	978	2327	2457	MINNESOTA								LANDER	1234	3006	3119
ALBUQUERQUE	978	2327	2457	DULUTH	1317	3469	3767	OREGON				SHERIDAN	1044	2738	3010
ALBUQUERQUE	978	2327	2457	INTERNATIONAL FALLS	1539	4239	4157	ASTORIA	540	1676	2136				
ALBUQUERQUE	978	2327	2457	MINNEAPOLIS	1203	2690	3093	RUPNS U	1082	2681	2899				
ALBUQUERQUE	978	2327	2457	ROCHESTER	1261	2885	3127	EUGENE	671	1703	1888				
ALBUQUERQUE	978	2327	2457	ST CLOUD	1247	3308	3397	MEADFIELD	776	1662	1972				
ALBUQUERQUE	978	2327	2457					PENDLETON	823	2106	2116				
ALBUQUERQUE	978	2327	2457	MISSISSIPPI				PORTLAND	631	1466	1914				
ALBUQUERQUE	978	2327	2457	JACKSON	592	1099	896	SALEM	620	1747	1923				
ALBUQUERQUE	97														

# MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65°F)

1974

State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Season	Normals Jan.- Dec.
<b>ALABAMA</b>														
BIRMINGHAM U	0	0	11	40	176	517	452	453	722	49	5	1	1726	2219
BIRMINGHAM	0	1	8	43	188	528	466	424	744	7	7	2	1719	2206
HUNTSVILLE	0	0	9	16	113	280	400	393	189	36	0	0	1436	1808
MOBILE	0	0	28	144	267	448	517	509	361	146	16	5	2442	2577
MONTGOMERY	0	2	13	77	214	346	482	474	337	79	8	1	2033	2238
<b>ALASKA</b>														
ANCHORAGE	0	0	0	0	0	0	4	0	0	0	0	0	4	0
ANNETTE	0	0	0	0	0	0	1	8	0	0	0	0	9	14
BARROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BARTER ISLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BETHEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RETTLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIG DELTA	0	0	0	0	0	0	11	1	0	0	0	0	12	17
COLD BAY	0	0	0	0	0	0	11	15	0	0	0	0	28	34
FAIRBANKS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GULKANA	0	0	0	0	0	0	16	7	0	0	0	0	23	0
HOMER	0	0	0	0	0	0	1	0	0	0	0	0	1	0
JUNEAU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KING SALMON	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KODIAK	0	0	0	0	0	0	9	0	0	0	0	0	8	0
KOTzebue	0	0	0	0	0	0	1	0	0	0	0	0	1	0
MC GRATH	0	0	0	0	0	0	1	1	0	0	0	0	2	14
NOME	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ST. PAUL ISLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TALKEETNA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNALAKLEET	0	0	0	0	0	0	0	1	0	0	0	0	1	6
VALDEZ	0	0	0	0	0	0	4	0	0	0	0	0	4	0
YAKUTAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>ARIZONA</b>														
FLAGSTAFF	0	0	0	0	0	10	47	24	4	0	0	0	85	140
PHOENIX	0	0	11	191	411	741	901	763	764	347	7	0	4186	3508
TUCSON	0	0	1	101	249	551	706	576	580	282	6	0	3052	2814
WINSLOW	0	0	0	2	30	213	430	310	187	13	0	0	1185	1203
YUMA	0	0	60	232	476	724	867	813	869	416	14	10	4381	4195
<b>ARKANSAS</b>														
FORT SMITH	0	0	7	33	113	307	464	426	207	85	4	0	1646	2022
LITTLE ROCK	0	0	24	48	178	396	502	442	240	94	1	0	1926	1925
NO. LITTLE ROCK	0	0	7	39	131	329	472	431	194	99	1	0	1703	1951
<b>CALIFORNIA</b>														
BAKERSFIELD	0	0	12	40	321	500	614	524	513	205	1	3	2733	2179
BISHOP	0	0	0	0	70	187	365	243	172	17	0	0	1054	1037
BLUE CANYON	0	0	0	0	12	0	128	61	80	14	0	0	295	0
EUREKA U	0	0	0	0	0	0	0	0	15	0	0	2	17	0
FRESNO	0	0	2	37	229	396	541	471	442	149	0	0	2267	1671
LONG BEACH	0	0	10	25	61	220	226	272	102	72	1	14	1203	985
LOS ANGELES	0	0	0	0	35	133	117	193	271	60	9	23	845	615
LOS ANGELES U	0	0	14	17	67	209	229	252	170	124	53	62	1406	1185
MT. SHASTA R	0	0	0	0	2	19	142	59	27	5	0	0	235	0
OAKLAND	0	0	0	0	13	29	35	43	110	28	0	0	252	128
RED BLUFF	0	0	0	0	246	401	556	423	444	132	0	0	2208	1904
SACRAMENTO	0	0	0	0	117	214	336	260	297	72	0	0	1294	1159
SAN DIEGO	0	0	10	6	46	169	216	283	348	124	5	8	1215	722
SAN FRANCISCO	0	0	0	0	11	19	25	21	86	18	0	0	182	108
SAN FRANCISCO U	0	0	0	0	11	13	10	3	72	16	0	0	125	39
SANTA MARIA	0	0	0	0	8	14	21	7	51	12	0	0	113	84
STOCKTON	0	0	0	0	192	309	412	386	190	104	0	0	1793	1259
<b>COLORADO</b>														
ALAMOSA	0	0	0	0	0	0	21	13	0	0	0	0	34	88
COLORADO SPRINGS	0	0	0	0	1	84	185	124	77	2	0	0	473	461
DENVER	0	0	0	0	2	112	275	163	102	7	0	0	661	625
GRAND JUNCTION	0	0	0	6	52	225	428	310	215	27	0	0	1263	1140
PUEBLO	0	0	0	1	25	169	363	221	124	1	0	0	904	981
<b>CONNECTICUT</b>														
BRIDGEPORT	0	0	0	0	16	79	288	259	85	4	0	0	731	735
HARTFORD	0	0	0	0	60	151	320	218	56	6	0	0	811	584
<b>DELAWARE</b>														
WILMINGTON	0	0	4	1	57	123	327	324	138	16	0	3	990	992
<b>DIST. OF COLUMBIA</b>														
WASHINGTON DULLS	0	0	9	5	69	147	297	310	112	21	6	0	976	940
WASHINGTON NATIONAL	0	0	14	9	120	231	431	425	208	39	2	0	1479	1415
<b>FLORIDA</b>														
APPALACHICOLA U	1	0	4	134	252	426	517	498	406	147	46	1	2428	2663
DAYTONA BEACH	26	28	68	231	332	419	538	471	467	252	111	23	2961	2919
FORT MYERS	52	80	124	344	444	535	650	604	567	440	287	112	4237	3711
JACKSONVILLE	1	13	36	131	259	369	532	484	436	158	61	3	2483	2596
KEY WEST	154	147	250	417	516	588	637	632	566	502	362	235	5006	4888
MIAMI	90	81	149	391	492	516	572	537	481	407	324	178	4218	4038
ORLANDO	26	31	65	260	330	476	675	546	498	299	153	53	3315	3226
PENSACOLA	0	2	14	146	276	467	644	527	401	162	16	1	2040	2695
TALLAHASSEE	0	0	0	103	241	378	503	456	361	102	35	2	2198	2563
TAMPA	28	36	71	283	344	482	592	543	415	322	55	3	3337	3366
WEST PALM BEACH	59	87	123	267	349	461	555	549	496	396	266	117	3745	3786
<b>GEORGIA</b>														
ATHENS	0	0	15	25	180	286	398	443	271	40	6	0	1614	1722
ATLANTA	0	0	13	33	181	327	436	475	247	49	5	0	1762	1589
AUGUSTA	0	0	9	29	197	301	473	460	288	52	20	0	1829	1995
COLUMBUS	0	2	21	86	243	398	536	516	314	99	24	2	2243	2143
MACON	0	1	18	57	210	375	505	514	312	86	13	4	2115	2294
ROME	0	0	0	0	158	285	447	447	207	17	0	0	0	0
SAVANNAH	0	0	28	105	282	360	537	516	378	126	51	2	2390	2317



## MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65°F)

1979

State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Season	Normals Jan. - Dec.
<b>HAWAII</b>														
HILLO	186	160	210	271	278	280	302	338	351	350	246	248	3189	3066
HONOLULU	190	209	250	299	412	458	500	485	489	504	378	326	4469	4221
KAHULUI	197	197	206	255	346	410	446	486	485	487	354	331	4200	3732
LIHUE	263	224	220	229	320	374	423	445	474	426	303	252	3953	3719
<b>IDAHO</b>														
BOISE	0	0	0	0	27	129	293	199	101	3	0	0	752	714
LEWISTON	0	0	0	0	15	131	360	315	140	7	0	0	968	657
POCATELLO	0	0	0	0	0	64	207	145	63	0	0	0	479	437
<b>ILLINOIS</b>														
CAIRO U	0	0	0	14	131	402	484	444	221	66	2	0	1764	1806
CHICAGO O HARE	0	0	0	2	61	164	241	213	99	26	0	0	806	664
CHICAGO MIDWAY	0	0	0	1	51	165	251	227	92	25	0	0	812	925
MAINE	0	0	0	0	83	206	272	245	79	22	0	0	907	893
PEORIA	0	0	0	0	62	206	259	258	95	23	0	0	903	968
ROCKFORD	0	0	0	0	56	134	217	187	69	16	0	0	679	714
SPRINGFIELD	0	0	0	2	93	305	327	295	138	41	0	0	1201	1116
<b>INDIANA</b>														
EVANSVILLE	0	0	0	13	65	310	365	312	138	35	0	0	1238	1364
FORT WAYNE	0	0	0	4	58	156	198	167	78	16	0	0	677	748
INDIANAPOLIS	0	0	0	7	57	176	255	250	92	24	0	0	882	974
SOUTH BEND	0	0	0	2	46	181	236	220	93	21	0	0	801	695
<b>IOWA</b>														
BURLINGTON	0	0	0	0	65	212	275	259	101	19	0	0	931	994
DES MOINES	0	0	0	0	46	194	304	305	118	15	0	0	984	928
JACKSON	0	0	0	0	36	106	203	181	66	8	0	0	600	606
KIOKUK CITY	0	0	0	0	33	186	299	249	95	0	0	0	865	932
WATERLOO	0	0	0	0	35	153	237	230	106	9	0	0	770	675
<b>KANSAS</b>														
CONCORDIA	0	0	1	5	39	261	381	365	201	27	0	0	1280	1302
DOODGE CITY	0	0	2	23	46	292	411	296	206	40	0	0	1316	1411
GODDARD	0	0	0	3	29	176	246	235	139	11	0	0	939	925
TOPEKA	0	0	4	7	76	237	401	379	144	27	0	0	1275	1361
WICHITA	0	0	5	14	81	294	488	465	249	67	0	0	1663	1673
<b>KENTUCKY</b>														
COVINGTON	0	0	2	8	38	154	271	248	102	22	0	0	845	1080
LEXINGTON	0	0	2	8	57	199	287	292	102	21	0	0	968	1197
LOUISVILLE	0	0	5	10	73	279	326	350	154	39	0	0	1236	1268
<b>LOUISIANA</b>														
HATON ROUGE	1	6	44	141	233	430	521	501	338	144	14	6	2379	2585
LAKE CHARLES	2	2	36	140	248	444	521	514	336	183	17	1	2444	2739
NEW ORLEANS	0	14	63	198	307	491	581	559	435	206	25	16	2895	2706
SHREVEPORT	0	8	39	86	178	395	509	483	284	124	8	2	2116	2538
<b>MAINE</b>														
CARIBOU	0	0	0	0	8	50	153	57	16	6	0	0	290	128
PORTLAND	0	0	0	0	15	34	162	83	19	3	0	0	316	252
<b>MARYLAND</b>														
BALTIMORE	0	0	15	4	72	183	348	341	145	28	1	0	1137	1108
<b>MASSACHUSETTS</b>														
BLUE HILL OBS R	0	0	0	0	26	56	264	167	57	14	0	0	584	457
BOSTON	0	0	0	0	35	122	304	226	85	17	0	0	789	661
WORCESTER	0	0	0	0	24	44	225	142	38	10	0	0	483	387
<b>MICHIGAN</b>														
ALPENA	0	0	0	0	10	47	112	55	41	7	0	0	272	208
DETROIT	0	0	0	0	46	138	198	135	69	12	0	0	598	598
DETROIT METRO	0	0	0	0	32	109	184	124	57	16	0	0	522	654
FLINT	0	0	0	0	43	118	177	97	57	17	0	0	509	438
GRAND RAPIDS	0	0	0	0	46	129	204	147	69	19	0	0	614	575
HOUGHTON LAKE	0	0	0	0	18	58	112	45	31	7	0	0	271	250
LANSING	0	0	0	0	48	133	192	125	63	17	0	0	578	535
MUSKEGON	0	0	0	0	29	67	137	103	36	7	0	0	379	469
SAULT STE MARIE	0	0	0	0	0	13	87	30	15	0	0	0	145	139
<b>MINNESOTA</b>														
DULUTH	0	0	0	0	4	25	95	30	15	0	0	0	169	176
INTERNATIONAL FALLS	0	0	0	0	1	18	86	18	8	0	0	0	131	176
MINNEAPOLIS	0	0	0	0	17	113	275	181	65	0	0	0	651	985
POCHESTER	0	0	0	0	21	119	246	167	57	1	0	0	611	474
ST CLOUD	0	0	0	0	14	52	140	87	31	0	0	0	324	426
<b>MISSISSIPPI</b>														
JACKSON	0	2	35	69	190	357	482	461	269	76	4	2	1947	2321
MERIDIAN	0	0	13	57	168	309	526	493	307	63	6	0	1942	2231
<b>MISSOURI</b>														
COLUMBIA REGIONAL	0	0	0	10	73	224	357	337	125	39	0	0	1165	1269
KANSAS CITY	0	0	1	3	77	229	348	340	147	29	0	0	1174	1285
ST JOSEPH	0	0	0	0	48	199	331	356	135	28	0	0	1097	1334
ST LOUIS	0	0	2	9	102	354	446	420	195	50	0	0	1578	1475
SPRINGFIELD	0	0	0	10	56	183	319	341	148	65	0	0	1122	1382
<b>MONTANA</b>														
BILLINGS	0	0	0	0	12	126	270	216	86	6	0	0	716	498
GLASGOW	0	0	0	0	8	70	236	170	48	1	0	0	533	438
GREAT FALLS	0	0	0	0	2	55	152	132	50	5	0	0	396	339
HAVRE	0	0	0	0	5	83	187	185	48	6	0	0	395	395
HELENA	0	0	0	0	1	45	152	103	21	0	0	0	322	256
KALISPELL	0	0	0	0	0	18	142	96	2	0	0	0	258	117
MILES CITY	0	0	0	4	26	138	305	237	92	0	0	0	802	752
MISSOULA	0	0	0	0	0	50	177	146	17	0	0	0	390	188

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1979

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NEBRASKA														
GRAND ISLAND	0	0	0	0	36	211	294	303	132	2	0	0	978	1036
LINCOLN	0	0	0	7	42	235	320	310	160	4	0	0	1098	1148
NORFOLK	0	0	0	2	39	212	297	268	128	0	0	0	946	925
NORTH PLATTE	0	0	0	0	27	156	294	262	123	0	0	0	862	802
OMAHA (EPPLEY)	0	0	0	8	64	249	344	345	122	0	0	0	1132	949
OMAHA (NORTH)	0	0	0	1	47	206	301	303	142	2	0	0	1002	949
SCOTT'S BLUFF	0	0	0	8	19	163	317	274	121	1	0	0	853	666
VALENTINE	0	0	0	4	20	136	280	208	129	0	0	0	777	736
NEVADA														
ELKO	0	0	0	0	9	120	284	207	70	4	0	0	694	342
ELY	0	0	0	0	0	35	103	56	14	0	0	0	208	207
LAS VEGAS	0	0	0	104	346	625	813	656	614	229	0	0	3387	2946
RENO	0	0	0	0	9	63	169	172	38	3	0	0	404	329
WINNEMUCA	0	0	0	0	29	114	256	165	26	3	0	0	593	407
NEW HAMPSHIRE														
CONCORD	0	0	0	1	15	69	232	150	46	6	0	0	519	349
MT WASHINGTON OBS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW JERSEY														
ATLANTIC CITY	0	0	5	0	50	103	308	266	103	15	0	0	850	864
ATLANTIC CITY U	0	0	0	0	5	74	252	263	111	8	0	0	835	835
NEWARK	0	0	0	2	59	147	381	372	158	34	3	0	1156	1024
TRENTON U	0	0	0	1	44	131	308	313	119	19	1	0	936	968
NEW MEXICO														
ALBUQUERQUE	0	0	0	5	67	269	491	182	249	45	0	0	1508	1316
CLAYTON	0	0	0	1	6	145	283	173	117	17	0	0	742	767
ROSWELL	0	0	0	35	133	311	506	364	251	84	0	0	1684	1560
NEW YORK														
ALBANY	0	0	0	0	39	99	258	168	55	17	0	0	636	574
BINGHAMTON	0	0	0	0	23	47	167	98	22	14	0	0	371	369
BUFFALO	0	0	0	6	40	118	217	120	49	20	0	0	570	437
NEW YORK U	0	0	0	4	71	149	378	376	192	43	5	0	1218	1068
NEW YORK KENNEDY	0	0	0	0	26	83	310	283	115	7	0	0	824	861
NEW YORK LA GUARDIA	0	0	0	0	41	138	382	335	131	22	0	0	1049	1048
ROCHESTER	0	0	0	1	52	121	244	112	49	18	0	0	597	531
SYRACUSE	0	0	0	2	50	109	232	134	46	22	0	0	595	551
NORTH CAROLINA														
ASHEVILLE	0	0	0	1	55	141	234	261	96	4	0	0	792	872
CAPE HATTERAS R	0	0	2	23	121	203	394	407	313	69	24	0	1556	1550
CHARLOTTE	0	0	4	28	122	208	369	419	183	30	3	0	1366	1596
GREENSBORO	0	0	6	26	95	159	340	365	157	28	4	0	1180	1341
RALEIGH	0	0	6	28	105	159	332	384	205	46	10	0	1275	1394
WILMINGTON	0	2	9	84	210	298	487	490	293	65	28	0	1966	1964
NORTH DAKOTA														
BISMARCK	0	0	0	0	6	67	178	86	28	0	0	0	365	487
FARGO	0	0	0	0	12	85	225	124	58	0	0	0	504	473
WILLISTON	0	0	0	0	12	83	180	107	33	0	0	0	415	422
OHIO														
AKRON	0	0	0	5	36	106	173	166	68	10	0	0	564	634
CINCINNATI ABBE OB	0	0	2	11	64	173	254	281	122	23	0	0	930	1188
CLEVELAND	0	0	0	6	42	122	213	218	93	21	0	0	715	613
COLUMBUS	0	0	0	7	54	163	230	239	93	22	0	0	808	809
DAYTON	0	0	1	12	63	179	260	234	87	18	0	0	854	936
MANSFIELD	0	0	0	4	38	109	157	146	60	17	0	0	531	818
TOLEDO	0	0	0	0	46	127	182	158	67	22	0	0	602	685
YOUNGSTOWN	0	0	0	7	38	95	147	139	61	14	0	0	501	518
OKLAHOMA														
OKLAHOMA CITY	0	0	10	18	112	314	505	471	252	121	2	0	1805	1876
TULSA	0	0	9	48	167	388	577	527	298	137	6	0	2157	1949
OREGON														
ASTORIA	0	0	0	0	0	0	15	0	11	1	0	0	27	13
BURNS U	0	0	0	0	3	48	172	111	27	6	0	0	367	289
EUGENE	0	0	0	0	0	16	111	40	15	0	0	0	182	239
MEDFORD	0	0	0	0	2	95	251	172	108	30	0	0	658	562
PENDLETON	0	0	0	0	21	114	261	186	65	3	0	0	650	656
PORTLAND	0	0	0	0	18	65	183	124	65	7	0	0	462	300
SALEM	0	0	0	0	0	29	121	48	20	1	0	0	219	232
SEXTON SUMMIT R	0	0	0	0	5	35	88	11	63	26	0	0	228	137
PACIFIC AREA														
GUAM TAGUAC R	391	344	403	423	480	491	461	435	425	447	422	408	5130	5011
JOHNSTON	338	304	384	377	442	459	500	531	532	534	424	431	5256	5086
KOROR R	516	463	511	497	547	488	506	524	520	533	522	520	6147	6008
MAJURO	507	467	561	504	544	526	546	536	547	559	530	532	6354	6164
PAGO PAGO	507	454	519	447	501	504	520	500	512	537	510	527	6038	5904
PONAPE R	502	465	540	458	509	487	424	436	469	502	470	487	5749	5325
TRUK MOEN ISLAND	524	465	525	477	520	506	516	492	512	524	508	503	6074	5652
WAKE	533	489	531	511	531	527	529	512	531	513	504	517	6228	5888
YAP R	192	354	443	458	527	556	632	518	550	576	436	426	5868	5455
	490	434	499	510	518	500	475	477	501	505	493	485	5887	5916
PENNSYLVANIA														
ALLENTOWN	0	0	0	1	42	126	274	268	92	7	1	0	811	772
ERIE	0	0	0	3	29	69	125	164	71	32	0	0	493	373
HARRISBURG	0	0	0	5	43	138	279	264	92	7	0	0	828	1025
PHILADELPHIA	0	0	6	5	90	146	357	339	137	16	1	0	1097	1104
PITTSBURGH	0	0	0	9	41	125	193	175	70	7	0	0	620	647
SCRANTON	0	0	0	2	32	78	218	214	75	15	0	0	634	608
WILLIAMSPORT	0	0	0	3	48	105	262	212	73	4	0	0	707	698
RHODE ISLAND														
BLOCK ISLAND	0	0	0	0	0	27	211	190	84	2	0	0	509	359
PROVIDENCE	0	0	0	0	26	59	279	190	74	12	0	0	640	532

# MONTHLY AND SEASONAL COOLING DEGREE DAYS

(Base 65°F)

1979

State and Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for Season	Normals Jan.- Dec.
<b>SOUTH CAROLINA</b>														
CHARLESTON	0	0	9	71	241	335	533	514	354	105	40	0	2204	2078
CHARLESTON U	0	0	0	72	178	316	516	535	355	144	47	0	2169	2354
COLUMBIA	0	0	13	36	157	253	425	461	276	50	22	0	1693	2087
GREENVILLE-SERTNER RD	0	0	8	28	164	215	312	368	180	20	1	0	1296	1573
<b>SOUTH DAKOTA</b>														
ABERDEEN	0	0	0	0	11	83	183	150	75	0	0	0	502	566
HURON	0	0	0	0	13	162	324	188	96	0	0	0	783	711
RAPID CITY	0	0	0	4	15	99	179	141	110	2	0	0	550	661
SIOUX FALLS	0	0	0	3	25	131	289	189	87	0	0	0	724	719
<b>TENNESSEE</b>														
CHATTANOOGA	0	0	0	1	59	113	194	259	85	0	0	0	720	1107
CHATTANOOGA	0	0	0	12	119	279	361	416	227	24	0	0	1432	1636
KNOXVILLE	0	0	15	20	111	242	317	399	224	23	4	0	1355	1569
MEMPHIS	0	0	19	68	184	394	553	499	259	108	4	0	2088	2029
NASHVILLE	0	0	11	5	103	264	393	381	175	44	0	0	1376	1694
OAK RIDGE	0	0	2	5	74	202	285	314	151	11	0	0	1044	1367
<b>TEXAS</b>														
ABILENE	0	9	20	67	209	428	586	539	390	253	11	0	2512	2466
AMARILLO	0	0	0	12	64	218	380	276	177	41	0	0	1168	1433
AUSTIN	0	0	20	102	216	449	570	549	385	285	29	0	2631	2908
BEAUMONT	46	56	173	339	340	517	645	614	389	368	118	46	3689	3878
CORPUS CHRISTI	26	39	140	289	366	507	639	624	421	333	89	47	3520	3474
DALLAS FT WORTH	0	0	1	67	179	489	613	551	366	220	14	0	2509	2587
DEL RIO	0	0	66	172	340	444	701	625	483	337	24	0	3210	3363
EL PASO	0	0	0	84	190	414	630	432	308	99	0	0	2157	2098
GALVESTON	0	0	22	128	271	488	544	547	339	268	22	0	2629	3004
HOUSTON INTERCON	7	13	62	142	261	454	552	519	324	211	26	6	2577	2889
LUBBOCK	0	0	0	44	183	371	524	394	264	98	0	0	1878	1647
MIDLAND	0	0	0	43	216	383	539	442	314	167	0	0	2109	2250
PORT ARTHUR	4	17	54	156	250	464	529	523	352	203	27	11	2590	2798
SAN ANGELO	0	2	17	77	263	394	579	487	309	217	12	0	2357	2702
SAN ANTONIO	3	13	64	166	285	482	619	570	418	322	42	13	2998	2994
VICTORIA	7	18	78	190	277	476	563	559	362	266	28	5	2829	3140
WACO	0	1	21	61	177	426	584	529	320	220	17	1	2317	2863
WICHITA FALLS	0	2	18	49	208	444	628	551	324	176	14	1	2415	2611
<b>UTAH</b>														
MILFORD	0	0	0	0	4	89	267	174	54	1	0	0	589	688
SALT LAKE CITY	0	0	0	2	54	214	439	336	208	21	0	0	1274	927
<b>VERMONT</b>														
BURLINGTON	0	0	0	2	29	106	253	101	27	13	0	0	531	396
<b>VIRGINIA</b>														
LYNCHBURG	0	0	11	12	54	143	298	322	121	21	0	0	982	1100
NORFOLK	0	0	11	13	112	171	385	426	239	54	22	0	1433	1441
PLUMMER	0	0	16	30	117	188	374	404	195	42	9	0	1375	1353
POANOKE	0	0	10	7	56	150	273	296	97	12	1	0	902	1030
WALLOPS ISLAND	0	0	1	0	26	124	375	394	229	38	0	0	1187	1107
<b>WASHINGTON</b>														
OLYMPIA	0	0	0	0	0	6	73	12	2	0	0	0	93	101
QUILLAYUTE	0	0	0	0	0	0	11	1	3	0	0	0	15	8
SEATTLE	0	0	0	0	1	12	79	27	20	0	0	0	139	183
SEATTLE-TACOMA	0	0	0	0	2	27	106	15	21	0	0	0	171	129
SPOKANE	0	0	0	0	1	73	217	166	39	0	0	0	496	388
STAMPEDE PASS RD	0	0	0	0	0	1	32	0	0	0	0	0	33	16
WALLA WALLA U	0	0	0	3	44	165	375	299	135	11	0	0	1032	862
YAKIMA	0	0	0	0	12	91	255	174	37	2	0	0	571	479
<b>WEST INDIES</b>														
SAN JUAN P.R.	426	393	464	436	512	571	582	564	511	569	477	432	5877	4982
<b>WEST VIRGINIA</b>														
BECKLEY	0	0	0	1	31	49	121	157	39	6	0	0	404	490
CHARLESTON	0	0	13	18	69	138	257	277	105	17	0	0	894	1055
ELKINS	0	0	0	2	21	45	142	149	33	0	0	0	392	389
HUNTINGTON	0	0	13	17	76	173	286	301	113	22	3	0	1004	1098
PARKERSBURG U	0	0	9	11	70	129	240	267	96	18	0	0	840	1045
<b>WISCONSIN</b>														
GREEN BAY	0	0	0	0	6	68	191	91	23	1	0	0	380	386
LA CROSSE	0	0	0	0	30	104	226	161	60	3	0	0	584	695
MILWAUKEE	0	0	0	0	33	88	168	115	33	13	0	0	450	460
MILWAUKEE	0	0	0	0	16	87	209	147	68	11	0	0	538	450
<b>WYOMING</b>														
CASPER	0	0	0	0	0	62	187	129	37	0	0	0	415	458
CHEYENNE	0	0	0	0	1	42	160	100	49	0	0	0	352	327
LANDER	0	0	0	0	2	81	185	113	55	0	0	0	436	383
SHERIDAN	0	0	0	0	1	42	108	121	46	0	0	0	318	446



# STORM SUMMARY

NUMBER 111

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				(3)HEAVY SNOWSTORMS AND BLIZZARDS				# ICE STORMS				⊕ ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES	† DAMAGE	DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE		DEATHS	INJURIES	†DAMAGE	
								PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS			PROP. ERTY	CROPS
Alabama	*																												
Alaska												4																	
Arizona	*																									30		7	
Arkansas																													
California		2	1		5							6	C																
Colorado																													
Connecticut										1		4																	
Delaware	*																												
Florida	*																												
Georgia	*																												
Hawaii	+																												
Idaho	*																												
Illinois										1		4																	
Indiana												4																	
Iowa	*											4																	
Kansas	*																												
Kentucky	*																												
Louisiana												4																	
Maine	*																												
Maryland & DC												3																	
Massachusetts	+																												
Michigan											2	5																	
Minnesota	*											4																	
Mississippi																													
Missouri																													
Montana												5																	
Nebraska												4																	
Nevada	*																												
New Hampshire	*																												
New Jersey		3	1																		2	2							
New Mexico	*																												
New York																													
North Carolina												?																4	
North Dakota												4																	
Ohio										8		6									3								
Oklahoma	*																												
Oregon	*																												
Pacific																													
Pennsylvania												5									2						6		
Puerto Rico	*																												
Rhode Island												5																	
South Carolina	*																												
South Dakota	*																												
Tennessee	*																								4	4			
Texas																													
Utah	*																												
Vermont	*																												
Virginia	*																												
Virgin Islands	*																												
Washington												5																	
West Virginia	*																												
Wisconsin										?		?																	
Wyoming												6																	

## Average monthly values

CHADLLO 34

- 18 -



## Average monthly values

DECEMBER 1979

DODGE CITY, KS 976 MB										EL PASO, TX 886 MB										ELY, NV 812 MB										EMPALME, MEXICO 1015 MB										FAIRBANKS, AK 994 MB									
SFC	31	791	-4.1	-7.4	31	2.0	31	1.193	-2	-6.7	01	.9	31	1,908	-6.5	-15.0	19	3.3	31	12	12.2	4.3	34	2.4	31	135	-23.8	-25.9	04	.6																			
1000																																																	
950																																																	
900	31	1,034	3.8	-5.5	33	2.8																																											
850	31	1,550	4.5	-9.7	34	2.8	31	1,529	5.9	-4.7	30	1.4																																					
800	31	1,992	3.3	-10.7	32	2.3	31	2,025	5.0	-6.7	28	3.4	31	2,027	-5	-9.1	19	2.6	31	2,026	13.7	-4.1	26	7	31	1,296	-17.8	-22.0	20	1.5																			
750	31	2,511	1	-12.6	30	1.4	31	2,550	3	-9.9	27	3	31	2,565	-2	-10.8	21	.3	31	2,566	8.2	-11.0	27	3.0	31	2,229	-20.0	-24.3	25	2.2																			
700	31	3,066	-1.3	-16.3	29	6.0	31	3,107	-6	-14.7	27	6.0	31	3,096	-2.0	-14.3	28	2.3	31	3,153	4.9	-15.9	27	4.3	31	2,739	-22.2	-26.2	26	3.3																			
650	31	3,654	-4.3	-18.9	25	7.7	31	3,699	-2.5	-17.1	27	7.3	31	3,683	-4.7	-17.2	28	4.5	31	3,731	5.1	-16.6	27	6.0	31	3,281	-25.1	-29.0	25	6.7																			
600	31	4,250	-8.2	-23.4	28	8.9	31	4,329	-6.7	-20.3	27	8.4	31	4,308	-8.4	-21.1	29	6.2	31	4,370	-2.0	-20.5	28	7.7	31	3,858	-26.8	-32.9	25	5.4																			
550	31	4,949	-12.9	-27.7	28	10.5	31	5,003	-10.7	-25.1	27	9.0	30	5,081	-12.5	-25.2	30	9.2	31	5,053	-7.5	-25.9	27	10.2	31	4,476	-32.9	-36.8	25	5.8																			
500	31	5,669	-17.9	-32.3	28	12.2	31	5,729	-15.6	-29.7	26	11.6	30	5,702	-17.6	-29.4	30	8.8	31	5,788	-12.7	-27.6	27	12.5	31	5,147	-37.6	-41.2	26	7.1																			
450	31	6,404	-23.3	-36.5	27	13.4	31	6,473	-21.2	-34.6	26	13.2	29	6,487	-22	-33.3	30	10.7	31	6,576	-19.7	-37.4	28	13.9	31	5,800	-40.3	-43.3	20	7.1																			
400	31	7,300	-29.2	-42.7	27	14.7	31	7,374	-27	-40.3	25	14.2	29	7,339	-29.7	-39.3	30	12.4	31	7,490	-25.0	-38.4	27	15.5	31	6,647	-47.6		26	8.3																			
350	31	8,240	-36.8	-46.7	27	15.1	31	8,321	-34.9	-45.7	26	16.4	28	8,241	-36.9	-44.9	31	14.6	31	8,410	-32.2	-44.8	27	16.2	31	7,524	-51.7		26	9.8																			
300	31	9,287	-44.2		27	16.9	31	9,379	-42.5		26	18.7	28	9,327	-44.9		31	15.5	31	9,476	-40.3	-49.1	27	19.0	31	8,513	-55.0		26	12.4																			
250	31	10,487	-52.1		27	20.2	30	10,595	-50.7		26	20.1	28	10,525	-52.6		31	14.4	31	10,696	-49.1		26	23.2	30	9,680	-55.1		26	13.3																			
200	30	11,915	-57.0		27	20.1	29	12,002	-57.0		27	23.9	28	11,946	-56.9		30	18.7	31	12,134	-56.6		27	25.1	30	11,108	-54.3		26	14.6																			
150	30	12,760	-67.8		28	18.7	29	12,862	-58.6		27	26.5	27	12,762	-58.4		30	18.8	31	12,976	-59.2		27	28.7	29	10,968	-56.6		26	16.4																			
100	30	13,731	-58.9		27	18.4	29	13,828	-60.4		27	19.8	26	13,766	-59.5		29	15.8	30	13,936	-61.9		27	21.4	30	12,951	-58.4		26	16.6																			
125	30	14,889	-61.1		27	17.2	29	14,958	-62.9		27	17.5	26	14,893	-61.7		29	14.9	30	15,057	-64.7		27	18.5	30	14,114	-55.9		26	17.9																			
29	16,447	-63.4		28	13.6	29	16,319	-64.2		27	13.4	26	16,265	-63.2		29	11.7	29	16,408	-64.0		27	13.7	30	15,528	-57.8		26	19.0																				
90	28	17,619	-64.2		27	10.8	29	17,645	-67.7		27	8.5	25	17,636	-64.1		29	9.0	28	17,742	-68.9		27	9.4	29	16,933	-59.6		26	20.2																			
70	26	18,437	-64.5		28	9.3	29	18,471	-66.9		27	7.7	25	18,456	-63.4		30	7.2	27	18,541	-68.0		27	6.5	29	17,766	-60.1		26	21.4																			
60	26	19,384	-63.7		28	7.9	29	19,406	-65.4		27	5.9	25	19,404	-62.8		29	5.0	25	19,441	-65.2		26	4.8	29	18,723	-61.9		26	22.8																			
50	26	20,304	-62.5		28	6.4	29	20,302	-63.4		27	3.9	26	20,531	-61.6		29	4.7	26	20,687	-62.0		26	4.0	29	19,800	-62.0		26	24.6																			
40	25	21,884	-61.8		28	3.9	29	21,896	-61.7		26	3	26	21,918	-60.8		29	4.7	23	21,971	-60.1		27	5.8	27	21,250	-66.6		26	25.4																			
30	23	23,680	-59.6		30	6.1	25	21,891	-58.9		36	3.6	21	23,717	-58.5		29	5.5	22	23,779	-57.0		26	4.3	26	23,011	-66.2		26	26.5																			
25	24	24,824	-58.5		30	5.5	24	24,691	-57.3		37	3.9	21	24,865	-58.2		28	5.7	19	24,937	-58.4		26	5.6	22	24,098	-67.7		26	28.1																			
20	23	26,229	-58.0		30	6.6	23	26,263	-54.7		29	6.1	20	26,274	-57.2		28	8.2	16	26,358	-53.5		27	10.0	18	25,435	-69.1		26	27.6																			
15	18	28,361	-57.3		29	12.3	12	25,104	-53.4					10	28,069	-56.3																																	



## Average monthly values

[illegible]

## Average monthly values

DECEMBER 1979

NET WEST, PA 1019 MB										KING SALMON, AK 1024 MB										KULSH, CAROLINE IS. 1007 MB										KOTZBUE, AK 1012 MB										LAKE CHARLES, LA 1022 MB									
Standard measure surface mb.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.	No. of observations	Dynamic height meters	Temperature °C	Dew Point °C	Direction tens of deg.	Resultant Wind Speed m.p.s.																			
5FC	31	161	18.2	10.7	18	1.1	11	14	-15.0	-19.4	7	3.3	31	161	18.2	10.7	18	1.1	11	14	-15.0	-19.4	7	3.3	31	161	18.2	10.7	18	1.1																			
1000	31	163	20.3	18.0	18	4.4	11	14	-13.2	-17.3	3	3.4	31	163	20.3	18.0	18	4.4	11	14	-13.2	-17.3	3	3.4	31	163	20.3	18.0	18	4.4																			
950	31	161	17.8	14.9	57	4.2	11	14	4.36	-11.7	1	1	950	31	161	17.8	14.9	57	4.2	11	14	4.36	-11.7	1	1	950	31	161	17.8	14.9	57	4.2																	
900	31	1,065	15.4	11.4	99	2.5	31	6	850	-12.1	-17.8	1	1	900	31	1,065	15.4	11.4	99	2.5	31	6	850	-12.1	-17.8	1	1	900	31	1,065	15.4	11.4	99	2.5															
850	31	1,549	13.6	6.1	133	1.7	11	1,787	-13.2	-23.6	32	7.2	31	1,549	13.6	6.1	133	1.7	11	1,787	-13.2	-23.6	32	7.2	31	1,549	13.6	6.1	133	1.7																			
800	31	2,450	12.2	-2.4	24	1.8	11	2,246	-15.1	-27.1	32	7.2	31	2,450	12.2	-2.4	24	1.8	11	2,246	-15.1	-27.1	32	7.2	31	2,450	12.2	-2.4	24	1.8																			
750	31	2,599	10.2	-7.8	24	2.0	11	2,765	-17.9	-29.6	31	7.4	31	2,599	10.2	-7.8	24	2.0	11	2,765	-17.9	-29.6	31	7.4	31	2,599	10.2	-7.8	24	2.0																			
700	31	3,148	7.5	-9.4	24	3.2	31	3,316	-27.4	-32.4	31	7.3	31	3,148	7.5	-9.4	24	3.2	31	3,316	-27.4	-32.4	31	7.3	31	3,148	7.5	-9.4	24	3.2																			
650	31	3,775	4.0	-12.7	29	4.2	30	3,904	-32.4	-36.3	31	7.3	31	3,775	4.0	-12.7	29	4.2	30	3,904	-32.4	-36.3	31	7.3	31	3,775	4.0	-12.7	29	4.2																			
600	31	4,421	1.0	-16.4	29	5.6	30	4,533	-28.1	-40.0	29	8.6	31	4,421	1.0	-16.4	29	5.6	30	4,533	-28.1	-40.0	29	8.6	31	4,421	1.0	-16.4	29	5.6																			
550	31	5,113	-3.4	-19.6	27	7.6	30	5,212	-31.0	-42.9	29	12.5	31	5,113	-3.4	-19.6	27	7.6	30	5,212	-31.0	-42.9	29	12.5	31	5,113	-3.4	-19.6	27	7.6																			
500	31	5,859	-6.7	-22.3	27	8.9	30	5,958	-35.6	-45.1	29	15.2	31	5,859	-6.7	-22.3	27	8.9	30	5,958	-35.6	-45.1	29	15.2	31	5,859	-6.7	-22.3	27	8.9																			
450	31	6,657	-14.0	-26.3	26	10.4	30	6,741	-41.1	-45.5	29	14.4	31	6,657	-14.0	-26.3	26	10.4	30	6,741	-41.1	-45.5	29	14.4	31	6,657	-14.0	-26.3	26	10.4																			
400	31	7,550	-20.8	-33.3	27	12.6	30	7,655	-46.6		28	16.4	31	7,550	-20.8	-33.3	27	12.6	30	7,655	-46.6		28	16.4	31	7,550	-20.8	-33.3	27	12.6																			
350	31	8,526	-28.1	-40.1	27	14.9	30	8,665	-51.6		28	17.2	31	8,526	-28.1	-40.1	27	14.9	30	8,665	-51.6		28	17.2	31	8,526	-28.1	-40.1	27	14.9																			
300	31	9,611	-36.5	-47.2	27	18.6	30	9,748	-58.6		26	18.8	31	9,611	-36.5	-47.2	27	18.6	30	9,748	-58.6		26	18.8	31	9,611	-36.5	-47.2	27	18.6																			
250	31	10,849	-46.3		27	21.8	30	10,988	-60.3		26	13.1	30	10,849	-46.3		27	21.8	30	10,988	-60.3		26	13.1	30	10,849	-46.3		27	21.8																			
200	31	12,287	-56.4		27	27.1	29	12,465	-69.9		26	10.1	28	31	12,287	-56.4		27	27.1	29	12,465	-69.9		26	10.1	28	31	12,287	-56.4		27	27.1																	
175	31	13,135	-61.4		27	26.7	29	13,194	-68.8		26	10.1	28	31	13,135	-61.4		27	26.7	29	13,194	-68.8		26	10.1	28	31	13,135	-61.4		27	26.7																	
150	29	14,480	-66.0		27	24.6	29	13,137	-53.6		26	13.4	30	14,480	-66.0		27	24.6	29	13,137	-53.6		26	13.4	30	14,480	-66.0		27	24.6																			
125	29	15,178	-69.0		27	20.0	29	14,309	-58.0		26	15.1	30	15,178	-69.0		27	20.0	29	14,309	-58.0		26	15.1	30	15,178	-69.0		27	20.0																			
100	30	16,500	-73.0		27	13.6	26	15,735	-56.6		26	16.0	30	16,500	-73.0		27	13.6	26	15,735	-56.6		26	16.0	30	16,500	-73.0		27	13.6																			
75	29	17,801	-74.4		27	8.9	29	17,152	-57.9		26	17.3	30	17,801	-74.4		27	8.9	29	17,152	-57.9		26	17.3	30	17,801	-74.4		27	8.9																			
50	29	18,588	-72.8		26	19.1	30	18,476	-57.9		26	19.1	30	18,588	-72.8		26	19.1	30	18,476	-57.9		26	19.1	30	18,588	-72.8		26	19.1																			
25	29	19,497	-67.7		26	2	29	18,966	-59.0		26	19.5	29	19,497	-67.7		26	2	29	18,966	-59.0		26	19.5	29	19,497	-67.7		26	2																			
0	50	20,606	-63.6		33		28	20,121	-60.1		26	21.8	28	20,606	-63.6		33		28	20,121	-60.1		26	21.8	28	20,606	-63.6		33																				
	50	21,995	-60.6		31	2.2	26	21,808	-61.6		26	26.4	28	21,995	-60.6		31	2.2	26	21,808	-61.6		26	26.4	28	21,995	-60.6		31	2.2																			
	30	23,792	-57.0		31	3.4	24	23,508	-62.5		26	29.2	27	30	23,792	-57.0		31	3.4	24	23,508	-62.5		26	29.2	27	30	23,792	-57.0		31	3.4																	
	25	24,947	-55.8		26	6.8	22	24,476	-57.9		27	31.2	26	25	24,947	-55.8		26	6.8	22	24,476	-57.9		27	31.2	26	25	24,947	-55.8		26	6.8																	
	20	26,377	-52.0		27	6.1	19	25,827	-55.1		27	30.8	19	20	26,377	-52.0		27	6.1	19	25,827	-55.1		27	30.8	19	20	26,377	-52.0		27	6.1																	
	15	28,241	-48.4		28	10.6	15	27,728	-65.5		27	13	15	15	28,241	-48.4		28	10.6	15	27,728	-65.5		27	13	15	15	28,241	-48.4		28	10.6																	
	14	30,912	-42.7		27	19.6					26	61	14	14	30,912	-42.7		27	19.6				26	61	14	14	30,912	-42.7		27	19.6																		

		LANDER, WY 891 MB				LITHE KALAI, HI 1012 MB				LITTLE ROCK, AP 1002 MB				LONGVIEW, TX 1008 MB				MCGRATH, AK 997 MB												
SFC	31	1,697	-6.7	-11.6	20	1.3	31	15	21.4	19.7	56	1.6	31	79	3.4	-1.5	10	-8	31	124	5.8	1.1	15	-3	31	103	-25.1	-26.6	31	-7
1000							21	142	21.8	18.8	0.2	2.2	17	230	8	-5.2	0.2	1.5	27	601	6.3	2	15	-8	12	229	-25.8	-28.3	35	5
950							31	586	18.9	16.6	0.5	2.8	31	602	5.4	-5.4	0.8	3.8	31	611	8.4	-1.8	2.4	2.9	31	460	-18.5	-21.1	36	1.5
900							31	1,050	15.9	13.1	0.5	2.0	31	1,045	6.5	-6.9	2.5	5.3	31	1,058	8.3	-4.4	2.5	3.7	31	864	-18.0	-22.0	01	2.6
850							31	1,534	17.2	9.5	0.5	1.8	31	1,514	5.5	-7.2	2.7	5.9	31	1,529	7.2	-5.0	2.6	4.7	31	1,292	-16.9	-21.7	03	2.8
800	31	1,993	-9	-11.4	23	5.3	31	2,043	11.6	2.1	0.6	1.0	31	2,008	4.0	-8.5	2.7	7.1	31	2,027	5.6	-7.9	2.6	6.1	31	1,747	-17.0	-22.8	02	2.6
750	31	2,578	-1.7	-13.6	27	2.8	31	2,567	10.9	-5.5	1.3	1.0	31	2,531	2.8	-10.9	2.7	8.1	31	2,553	4.0	-10.7	2.7	7.2	31	2,230	-18.7	-25.2	34	2.8
700	31	3,557	-0.7	-15.7	27	2.8	31	3,546	10.6	-10.6	2.3	1.3	31	3,509	-0.7	-13.7	2.7	9.7	31	3,511	1.1	-14.0	2.7	8.1	31	3,299	-13.3	-20.9	33	2.8
650	31	3,635	-7.4	-17.6	29	11.7	31	3,766	6.4	-13.5	2.8	3.6	31	3,674	-4.0	-16.2	2.7	10.5	31	3,704	-2.0	-17.9	2.7	10.1	30	3,263	-23.9	-33.2	32	3.2
600	31	4,255	-10.4	-22.8	29	14.9	31	4,418	2.4	-16.7	2.9	5.8	31	4,381	-7.7	-20.7	2.7	11.9	31	4,336	-5.9	-21.2	2.7	12.2	30	3,663	-27.6	-36.7	31	4.0
550	31	4,921	-14.2	-26.8	30	15.4	31	5,115	-1.9	-20.8	2.8	7.4	31	4,973	-11.7	-25.6	2.7	12.3	31	5,013	-9.9	-25.2	2.6	13.9	30	4,483	-31.7	-40.4	31	4.1
500	31	5,637	-19.1	-30.8	29	15.3	31	5,866	-7.0	-24.9	2.9	9.0	31	5,696	-16.3	-30.4	2.7	14.8	31	5,741	-14.8	-29.2	2.6	15.5	30	5,151	-36.4	-44.2	30	4.5
450	31	6,412	-25.0	-35.2	29	15.5	31	6,679	-12.5	-29.8	2.9	11.3	31	6,481	-21.8	-35.0	2.7	17.1	31	6,510	-20.5	-32.5	2.6	18.1	30	5,874	-41.0	-45.8	28	4.3
400	31	7,257	-31.6	-40.7	28	17.1	31	7,508	-19.2	-35.4	2.6	12.6	31	7,337	-28.0	-40.0	2.7	19.8	31	7,350	-26.8	-38.8	2.6	20.8	28	6,676	-48.5	-54.6	28	6.9
350	31	8,191	-38.8	-44.9	28	18.0	30	8,551	-26.2	-41.4	2.0	15.0	31	8,286	-42.7	-46.0	2.6	22.7	31	8,346	-33.3	-44.4	2.6	23.5	28	7,556	-50.7	-58.9	28	8.9
300	31	9,220	-46.1	-50.7	29	22.4	30	9,496	-34.4	-47.4	1.4	21.0	31	9,247	-42.7	-46.0	2.6	22.7	31	9,247	-42.7	-46.0	2.6	23.5	28	7,556	-50.7	-58.9	28	8.9
250	31	10,416	-53.9	-58.9	29	22.4	30	10,496	-34.4	-47.4	1.4	21.0	31	10,555	-41.1	-44.4	2.6	23.5	31	10,617	-50.5	-55.5	2.6	24.0	29	9,552	-53.5	-57.5	27	10.4
200	31	11,836	-57.8	-62.8	29	23.3	30	12,165	-53.6	-58.6	1.4	22.7	31	11,977	-57.9	-62.9	2.6	29.7	31	12,047	-57.5	-62.5	2.6	32.9	29	11,158	-53.7	-57.7	26	14.9
175	31	12,676	-58.5	-63.5	29	22.2	30	13,212	-59.4	-64.4	1.4	22.2	31	12,817	-58.7	-63.7	2.6	28.8	31	12,887	-59.5	-64.5	2.6	31.3	29	12,017	-53.6	-57.6	26	15.9
150	31	13,694	-58.6	-64.6	29	21.0	30	14,163	-61.5	-66.5	1.4	22.0	31	13,782	-60.3	-65.3	2.6	25.9	31	13,846	-61.8	-66.8	2.6	29.2	29	13,007	-54.6	-58.6	26	17.1
125	31	14,796	-60.0	-66.0	28	17.7	30	15,256	-75.4	-80.4	1.4	19.2	30	14,907	-63.0	-68.0	2.7	22.5	31	14,969	-64.3	-69.3	2.6	23.1	29	14,171	-55.6	-59.6	26	19.0
100	30	16,177	-61.5	-67.5	28	15.4	29	16,556	-76.2	-81.2	1.4	18.3	29	16,265	-65.4	-70.4	2.7	16.4	31	16,324	-67.2	-72.2	2.6	18.1	29	15,588	-56.6	-60.6	25	20.7
75	30	17,561	-62.5	-68.5	28	12.0	27	17,841	-75.6	-80.6	1.4	16.8	29	17,666	-66.2	-71.2	2.7	13.3	31	17,725	-68.0	-73.0	2.6	16.8	29	16,995	-57.6	-61.6	25	21.7
50	29	18,387	-62.2	-69.2	28	10.0	27	18,667	-72.8	-77.8	1.4	15.2	29	18,485	-65.8	-70.8	2.7	12.0	31	18,541	-67.1	-72.1	2.6	15.5	29	18,332	-59.9	-63.9	25	22.2
25	28	19,396	-61.6	-68.6	28	7.6	27	19,536	-69.2	-74.2	1.4	14.2	29	19,374	-64.9	-69.9	2.8	10.1	31	19,405	-65.4	-70.4	2.6	14.2	28	18,793	-60.7	-64.7	26	23.8
0	26	20,481	-60.5	-67.5	28	5.6	27	20,637	-64.6	-69.6	1.4	13.2	29	20,490	-63.4	-68.4	2.8	5.9	30	20,519	-63.8	-68.8	2.7	4.9	28	19,923	-62.3	-66.3	26	25.1
40	25	21,869	-60.8	-67.8	29	4.6	26	22,015	-60.6	-65.6	1.4	9	27	21,889	-61.0	-66.0	2.8	4	30	21,895	-61.8	-66.8	2.8	3.9	26	21,285	-63.9	-67.9	26	26.6
20	31	23,653	-59.3	-65.3	28	6.4	25	23,821	-57.0	-62.0	1.4	36	7	23,666	-59.2	-64.2	3	3.6	28	23,687	-59.3	-64.3	3	3.6	25	23,040	-63.0	-67.0	26	28.9
25	13	24,747	-58.5	-64.5	27	6.1	25	24,984	-54.7	-59.7	1.4	31	24,740	-58.2	-63.2	2.9	4	30	24,832	-58.0	-63.0	2.9	2.8	21	24,219	-63.6	-67.6	26	27.2	
10	31	26,178	-59.4	-65.4	27	7.6	24	26,420	-52.7	-57.7	1.4	31	27,25	-57.1	-62.1	2.9	6.2	26	26,244	-56.2	-61.2	2.9	5.9	19	25,626	-60.0	-64.0	25	27.7	
7	7	27,963	-58.7	-64.7	27	3	28,204	-49.4	-54.4	1.4	31	25,722	-55.6	-60.6	2.9	8.9	22	26,087	-54.0	-59.0	2.9	11.5	16	27,462	-67.5	-71.5	25	29.3		
0	7						20	33,906	-37.8	-42.8	1.4	22	34,100	-35.4	-40.4	2.9	8	30,709	-49.9	-54.9	2.9									



## Average monthly values

DECEMBER 1979

PORTLAND, ME 1014 MB										QUILLACY, MA 1009 MB										RAPID CITY, SD 906 MB										ST CLOUD, MN 980 MB										ST PAUL ISLAND, AK 1005 MB									
9FC	21	20	-2+8	-7+4	31	2+1	29	5R	66+3	+4+8	1+4	31	2+4	31	316	-6+6	-8+9	30	19	10	-1+7	-6+4	08	2+1																									
1000	24	151	-2+9	-8+5	29	2+9	23	157	6+2	4+4	17	1+7							21	120	-4+3	-6+0	09																										
950	31	53+	-2+7	-8+0	30	8+7	29	549	5+4	2+4	19	5+9							21	453	-5+0	-7+3	10	1+2																									
900	31	96+	-3+7	-11+4	31	8+0	29	989	3+1	1+2	8+4	26	1+032	-1+1	-9+0	31	2+4	31	4+9	876	-7+5	-11+9	13	2+3																									
850	31	1415	+4+6	-13+4	30	8+2	29	1451	1+0	-2+7	7+1	9+9	31	1476	3+6	-10+5	30	7+2	31	1443	-1+4	-13+0	29	1+6																									
800	31	1851	-1+5	-18+6	29	7+1	29	1846	-1+0	-7+3	23	10+8	31	1967	1+2	-12+3	30	8+7	31	1925	-3+1	-15+8	30	7+8																									
750	31	2+395	-7+7	-20+4	28	11+8	29	2448	-4+1	-9+9	23	12+4	31	2463	-1+1	-15+2	31	9+7	31	2433	-1+3	-15+3	29	6+7																									
700	31	2+950	-10+1	-22+5	28	14+4	29	2+989	-7+3	-13+7	24	13+3	31	3+028	-5+2	-17+7	30	11+0	31	2+971	-8+5	-20+0	29	9+1																									
650	31	3+498	-12+7	-24+4	28	15+6	29	3+564	-10+3	-19+9	24	13+8	31	3+607	-8+5	-20+3	30	12+6	31	3+543	-11+4	-22+1	28	12+4																									
600	31	4+105	-16+1	-27+7	28	17+9	29	4+177	-11+0	-22+9	24	15+8	31	4+223	-12+1	-23+8	29	14+3	31	4+153	-14+5	-25+3	29	14+1																									
550	31	4+751	-19+4	-31+5	28	20+6	29	4+835	-16+9	-25+7	25	16+8	31	4+884	-15+7	-27+6	29	15+7	31	4+808	-18+3	-28+9	29	15+6																									
500	31	5+459	-21+6	-35+8	28	22+3	29	5+545	-21+5	-30+6	26	19+6	31	5+596	-20+4	-31+8	29	16+6	31	5+513	-22+8	-32+4	29	16+4																									
450	31	6+222	-28+5	-40+3	28	24+8	29	6+113	-26+7	-35+7	26	21+1	31	6+368	-25+5	-35+4	29	17+5	31	6+185	-26+8	-35+0	29	18+4																									
400	31	7+057	-34+0	-45+4	27	25+9	29	7+153	-32+9	-39+2	25	23+2	31	7+211	-32+0	-42+3	29	19+3	30	7+121	-33+6	-40+9	29	20+6																									
350	31	7+982	-40+4	-46+8	27	27+6	29	8+081	-40+1	-45+9	26	24+6	31	8+143	-39+0	-44+4	29	20+7	30	8+048	-40+3	-47+3	29	21+3																									
300	31	9+016	-47+0		27	29+0	29	9+114	-47+6		26	25+8	31	9+179	-47+2		29	21+9	29	9+085	-47+9		29	24+2																									
250	31	10+27	-52+5		28	30+0	27	11+103	-54+3		26	25+7	31	10+366	-53+9		29	22+4	29	10+270	-54+2		29	25+8																									
200	31	11+643	-57+6		28	31+1	27	12+107	-57+3		26	27+9	31	11+765	-57+3		29	22+1	28	11+691	-55+6		29	25+4																									
150	31	12+502	-53+9		28	33+1	27	12+666	-57+1		26	22+1	31	12+630	-57+2		29	24+5	28	12+543	-55+2		29	26+2																									
100	31	13+49+	-54+7		28	35+9	27	13+644	-56+4		27	22+2	30	13+609	-57+5		29	20+7	28	13+526	-55+7		29	24+4																									
50	31	14+653	-56+4		28	22+0	25	14+711	-57+4		27	20+8	30	14+757	-59+2		29	18+2	28	14+684	-57+1		28	20+1																									
0	31	16+06+	-57+6		28	17+8	23	16+113	-58+6		26	15+6	30	16+150	-60+8		28	17+2	28	16+089	-59+7		28	19+5																									
	31	17+470	-58+5		28	16+0	20	17+508	-60+1		27	15+4	29	17+34	-61+0		29	13+2	27	17+479	-59+6		29	16+8																									
	31	18+314	-58+8		28	15+1	19	18+393	-60+5		27	14+2	30	18+337	-60+6		29	10+7	18	18+314	-60+0		29	14+0																									
	31	19+282	-58+9		28	17+4	18	19+301	-60+5		27	13+1	28	19+350	-60+9		29	9+4	19	19+282	-60+3		29	14+0																									
	31	20+427	-58+9		27	11+2	18	20+438	-60+9		27	10+5	25	20+473	-60+7		28	8+1	26	20+407	-60+2		29	12+9																									
	31	21+828	-58+4		28	9+9	16	21+819	-61+5		27	11+3	24	21+865	-60+6		28	6+2	26	21+800	-60+1		28	13+4																									
	31	23+68+	-58+5		27	9+5	13	23+615	-61+4		28	8+9	19	23+663	-60+2		30	6+3	24	23+592	-60+1		28	12+4																									
	31	24+785	-58+5		28	11+1	9	24+785	-61+5		27	11+3	18	24+805	-60+2		29	5+6	21	24+753	-60+2		28	10+6																									
	31	26+190	-58+5		25	10+5	11	26+130	-62+7		28	12+4	9	26+228	-59+5		29	8+5	22	26+130	-60+7		28	8+5																									
	31	28+002	-58+4		29	13+5	5	27+837	-66+9		28	13	27+988	-60+5		28	9+7	13	27+949	-60+1		28	7+5																										
	31	10+562	-57+8		27	22+7					26	10+559	-59+7		7	30+484	-60+0		5	30+212	-65+4		26	40+0																									



## Average monthly values

DECEMBER 1979

SALEM, OR. 1000 MB												SALEM, OR. 1011 MB												SALT LAKE CITY, UT 877 MB												SAN DIEGO, CA 1004 MB												SAN JUAN, P. R. 1015 MB											
Standard pressure surface mb		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed m.p.s		No. of observations		Dynamic height meters		Temperature °C		Dew Point °C		Direction tens of deg		Resultant Wind Speed m.p.s																							
580	31.174	1	174	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.174	1	174	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.174	1	174	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
1000	31.252	1	252	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.252	1	252	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.252	1	252	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
950	31.282	1	282	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.282	1	282	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.282	1	282	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
900	31.312	1	312	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.312	1	312	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.312	1	312	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
850	31.342	1	342	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.342	1	342	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.342	1	342	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
800	31.372	1	372	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.372	1	372	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.372	1	372	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
750	31.402	1	402	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.402	1	402	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.402	1	402	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
700	31.432	1	432	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.432	1	432	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.432	1	432	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
650	31.462	1	462	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.462	1	462	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.462	1	462	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
600	31.492	1	492	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.492	1	492	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.492	1	492	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
550	31.522	1	522	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.522	1	522	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.522	1	522	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
500	31.552	1	552	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.552	1	552	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.552	1	552	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
450	31.582	1	582	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.582	1	582	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.582	1	582	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
400	31.612	1	612	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.612	1	612	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.612	1	612	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
350	31.642	1	642	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.642	1	642	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.642	1	642	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
300	31.672	1	672	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.672	1	672	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.672	1	672	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
250	31.702	1	702	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.702	1	702	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.702	1	702	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
200	31.732	1	732	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.732	1	732	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.732	1	732	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
150	31.762	1	762	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.762	1	762	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.762	1	762	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
100	31.792	1	792	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.792	1	792	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.792	1	792	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
50	31.822	1	822	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.822	1	822	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.822	1	822	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
0	31.852	1	852	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.852	1	852	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.852	1	852	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
580	31.922	1	922	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.922	1	922	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	31.922	1	922	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
1000	32.002	1	1002	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.002	1	1002	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.002	1	1002	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
950	32.032	1	1032	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.032	1	1032	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.032	1	1032	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
900	32.062	1	1062	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.062	1	1062	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.062	1	1062	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
850	32.092	1	1092	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.092	1	1092	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.092	1	1092	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
800	32.122	1	1122	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.122	1	1122	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.122	1	1122	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
750	32.152	1	1152	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.152	1	1152	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.152	1	1152	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
700	32.182	1	1182	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.182	1	1182	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.182	1	1182	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
650	32.212	1	1212	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.212	1	1212	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.212	1	1212	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
600	32.242	1	1242	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.242	1	1242	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.242	1	1242	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
550	32.272	1	1272	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.272	1	1272	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.272	1	1272	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
500	32.302	1	1302	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.302	1	1302	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.302	1	1302	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
450	32.332	1	1332	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.332	1	1332	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.332	1	1332	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
400	32.362	1	1362	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.362	1	1362	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.362	1	1362	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
350	32.392	1	1392	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.392	1	1392	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.392	1	1392	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
300	32.422	1	1422	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.422	1	1422	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.422	1	1422	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
250	32.452	1	1452	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.452	1	1452	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.452	1	1452	1.0	1.0	1.0	1.0	1.0	1.0	1.0																							
200	32.482	1	1482	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	20	32.482	1	1482	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0																																		

SAULT STE MARIE, MI 939 M										SPOKANE, WA 923 M										TAMPA BAY, FL 1019 M										TOPEKA, KS 989 M										TRUK, CAROLINE IS. 1010 M									
SFC	31	221	-4.7	-0.6	31	-8	30	740	-9	-2.6	20	3.2	31	13	12.6	11.0	03	1.5	31	268	-1.7	-5.6	27	1.1	30	2	26.4	24.4	06	2.1																			
1000	31	643	-5.1	-0.9	29	3.1	30	1,008	1.4	-1.1	21	6.5	31	174	15.1	11.5	06	2.8	31	609	14.9	8.4	11	1.6	31	588	1.5	-5.0	26	3.3	30	92	27.1	23.8	06	2.6													
950	31	534	-5.1	-0.7	26	5.8	30	1,008	1.4	-1.1	21	6.5	31	1,065	13.1	4.1	21	1.6	31	1,026	3.5	-8.8	28	6.4	30	1,018	21.2	17.2	08	3.3																			
900	31	463	-5.5	-1.4	25	5.8	30	1,067	-0.4	-0.3	23	9.4	31	1,505	13.1	-3.2	25	2.5	31	1,489	3.5	-11.9	26	5.1	30	1,512	15.5	13.8	08	3.0																			
850	31	1,411	-6.6	-1.7	24	9.6	30	1,952	-1.6	-6.4	24	10.1	31	2,052	11.3	-7.7	27	1.5	31	1,981	2	-12.7	26	7.1	30	2,023	16.3	13.3	08	3.0																			
800	31	1,885	-6.6	-1.7	23	9.6	30	1,952	-1.6	-6.4	24	10.1	31	2,052	11.3	-7.7	27	1.5	31	1,981	2	-12.7	26	7.1	30	2,023	16.3	13.3	08	3.0																			
750	31	2,386	-6.4	-2.0	26	11.1	30	2,464	-4.3	-8.9	25	10.7	31	2,584	9.1	-9.3	27	6.4	31	2,500	3	-14.3	28	8.0	30	2,580	14.1	5.3	08	4.1																			
700	31	2,920	-11.0	-2.2	29	12.9	30	3,005	-7.0	-11.7	28	11.5	31	3,157	5.8	-11.1	27	6.8	31	3,050	-2.5	-16.1	28	9.5	30	3,159	10.9	1.4	08	4.7																			
650	31	3,487	-13.6	-2.4	12	14.8	30	3,581	-9.7	-14.3	27	12.4	31	3,759	2.1	-12.7	27	8.6	31	3,635	-5.6	-17.7	28	11.4	30	3,775	7.5	-1.3	08	5.4																			
600	31	4,052	-16.8	-2.7	16	16.6	30	4,195	-13.1	-18.4	27	14.8	31	4,359	-1.6	-17.2	27	11.3	31	4,259	-9.3	-20.9	28	12.7	30	4,371	5.1	-5.7	08	5.6																			
550	31	4,742	-20.5	-3.1	25	19.9	30	4,954	-17.0	-23.7	26	16.1	31	5,099	-19.7	-25.4	27	13.4	31	4,912	-25.2	-28.4	28	15.0	30	5,034	-0.4	-9.8	08	6.0																			
500	31	5,441	-25.0	-3.7	28	21.5	30	5,563	-21.4	-29.2	26	17.5	31	5,629	-10.3	-25.1	27	14.7	31	5,445	-18.1	-31.5	28	14.8	30	5,692	-4.3	-14.5	08	7.4																			
450	31	6,199	-29.9	-3.6	26	23.2	30	6,332	-26.8	-34.7	27	19.3	31	6,352	-15.9	-29.4	27	17.1	31	6,824	-23.2	-35.1	27	15.0	30	6,915	-8.9	-20.0	08	7.3																			
400	31	7,028	-35.9	-4.5	26	23.8	29	7,171	-32.8	-38.9	27	21.1	31	7,508	-22.3	-35.0	26	19.4	31	7,275	-29.8	-40.7	28	16.5	30	7,619	-14.5	-26.5	08	7.2																			
350	31	7,947	-42.0	-4.6	26	25.6	29	8,100	-40.0	-43.1	27	23.2	31	8,479	-29.3	-40.0	26	22.0	31	8,212	-37.2	-46.1	28	17.6	30	8,621	-21.1	-33.1	08	7.3																			
300	31	8,973	-48.1	-4.8	26	27.7	28	9,238	-47.1	-49.7	26	24.8	31	9,629	-34.3	-46.3	25	25.8	31	9,250	-42.8	-50.8	27	18.4	30	9,638	-27.8	-41.6	08	7.4																			
250	31	10,160	-53.2	-5.0	28	28.6	28	10,321	-54.5	-56.8	26	26.2	31	10,789	-47.5	-50.9	27	29.0	31	10,460	-51.0	-57.9	27	23.8	30	11,013	-39.6	-51.1	10	7.4																			
200	31	11,591	-54.3	-5.1	28	29.8	27	11,728	-58.6	-61.9	27	24.1	30	12,231	-57.8	-61.2	27	33.0	31	11,869	-57.0	-62.7	27	24.3	30	12,498	-52.2	-60.1	10	9.1																			
175	31	12,449	-53.6	-5.1	29	26.8	27	12,568	-57.9	-61.2	27	22.5	30	13,067	-61.1	-64.5	27	31.8	30	12,737	-57.5	-62.7	27	23.2	30	13,349	-59.2	-67.2	09	9.5																			
150	31	13,439	-54.1	-5.1	28	26.8	27	13,542	-57.3	-60.6	27	21.8	30	14,016	-64.8	-68.2	27	28.5	30	13,710	-58.3	-63.3	27	23.3	30	14,297	-62.0	-70.9	09	10.3																			
125	31	14,559	-55.5	-5.1	28	24.9	26	14,707	-57.7	-61.0	27	19.1	30	15,120	-67.8	-71.2	27	22.5	30	14,852	-60.6	-65.7	27	21.7	30	15,374	-75.6	-83.1	09	13.1																			
100	31	16,023	-56.5	-5.1	28	21.4	25	16,110	-58.6	-61.9	27	17.2	30	16,451	-70.9	-74.3	27	17.6	30	16,230	-63.8	-68.9	27	18.4	30	16,643	-80.9	-88.4	09	14.4																			
75	30	17,474	-57.8	-5.1	28	17.6	23	17,505	-60.1	-63.4	27	13.7	30	17,766	-72.0	-75.4	27	10.0	25	17,608	-63.4	-68.5	28	13.7	30	17,895	-80.7	-88.2	09	16.8																			
50	28	18,272	-58.2	-5.1	26	14.7	21	18,343	-59.4	-62.7	27	12.9	30	18,557	-70.2	-73.6	27	6.3	29	18,429	-62.7	-67.8	28	11.5	30	18,655	-76.3	-83.8	09	8.3																			
25	28	19,243	-58.5	-5.1	26	14.9	21	1,308	-59.4	-62.7	27	10.8	30	19,480	-67.2	-70.6	27	5.1	29	19,380	-62.4	-67.5	28	9.1	28	19,559	-70.5	-78.0	09	13.6																			
5	28	20,387	-59.1	-5.1	26	13.1	21	20,447	-60.0	-63.3	26	9.8	30	20,588	-64.8	-68.2	28	2.9	25	20,511	-61.6	-66.7	28	6.2	28	20,655	-65.6	-73.1	09	21.7																			
40	31	21,769	-59.4	-5.1	26	11.6	20	21,830	-60.9	-64.2	26	8.2	30	21,981	-67.5	-70.9	31	2.6	24	21,881	-59.9	-65.0	29	5.1	27	22,039	-66.7	-74.2	09	24.8																			
25	31	23,074	-59.5	-5.1	26	10.1	18	23,164	-61.4	-64.7	26	10.1	29	23,760	-57.7	-61.1	32	4.6	23	23,649	-58.8	-63.9	29	5.8	25	23,863	-62.7	-70.2	09	24.8																			
20	28	24,749	-59.4	-5.1	26	9.8	16	24,751	-61.2	-64.5	26	10.4	26	24,933	-56.6	-60.0	29	4.4	23	24,847	-58.0	-63.1	28	5.3	22	25,052	-64.5	-72.0	09	11.5																			
20	28	26,142	-59.1	-5.1	26	12.1	15	26,150	-62.3	-65.6	26	13.9	29	26,336	-54.1	-57.5	28	6.6	21	26,261	-57.5	-62.6	28	8.2	20	26,533	-64.8	-72.3	09	16.0																			
15	31	27,764	-58.8	-5.1	27	9.6	9	27,944	-62.2	-65.5	27	27	28,192	-51.1	-54.5	28	10.9	19	28,079	-57.4	-62.5	28	11.8	18	28,472	-61.4	-68.9	26	15.4																				
10	31																																																

* TUCON, AZ 92H MS										* WADENBERG AFB, CA 100H MS										* VICTORIA, TX 101H MS										* WAKE IS., PACIFIC AREA 101H MS										* WALLPES ISLAND, VA NASAS 102H MS									
5FC	31	789	8.0	-6.4	14	3.0	31	100	11.4	1.4	08	1.8	31	33	8.3	6.1	36	1.4	31	5	24.9	21.5	07	3.7	31	4	3.7	-1.0	31	2.2																			
1000							30	167	13.3	2.1	08	1.7	31	180	11.9	5.8	05	1.0	31	135	23.7	19.4	07	5.3	30	177	5.3	-2.1	31	8.5																			
900							31	597	14.8	-1.1	13	1.2	31	609	11.0	2.3	17	7.0	31	583	20.2	17.9	07	6.5	30	590	4.1	-5.3	30	6.5																			
800		1.243	12.0	-3.6	12	4.7	31	1451	17.4	-4.4	16	2.1	31	1,051	10.6	1.1	22	3.1	31	1,048	16.9	14.5	07	5.3	31	1,028	3.0	-9.1	29	7.6																			
700		1.522	15.1	-5.2	12	6.1	31	1,532	10.6	-7.1	1	2.3	31	1,133	9.6	-9.4	26	3.1	31	1,101	10.1	07	3.7	31	1,176	1.0	-12.7	29	7.6																				
600		2.021	7.7	-7.6	15	1.2	31	2,035	8.3	-9.6	21	2.2	31	2,138	8.5	-3.9	26	5.1	31	2,046	13.2	2.2	07	3.1	31	1,074	6	-13.8	28	10.4																			
500		2.552	5.1	-10.6	28	1.4	31	2,565	5.3	-13.7	26	3.3	31	2,570	6.2	-7.1	26	6.1	31	2,587	11.5	-8.3	06	2.3	31	2,495	-9	-15.9	28	12.5																			
400		3.111	1.7	-13.4	28	2.2	31	3,125	2.3	-16.6	26	4.3	31	3,133	3.5	-11.1	26	7.3	31	3,161	9.2	-9.1	03	1.3	31	3,083	-3.3	-18.8	27	15.0																			
300		3.775	-1.7	-17.7	4	3.4	31	3,720	-1.2	-19.7	27	4.5	31	3,731	2	-15.4	26	9.0	31	3,772	6.1	-12.3	35	3	31	3,626	-6	-20.3	27	16.7																			
200		4.337	-5.6	-22.4	26	5.1	31	4,353	-4	-22.5	26	5.2	31	4,366	-19.3	3	26	12.1	31	4,386	12.1	-16.2	1	3	31	4,291	-2.4	-24.3	27	18.2																			
100		5.013	-10.4	-26.8	26	6.1	31	5,028	-10.4	-26.7	26	7.2	31	5,050	-7.6	-21.8	26	14.8	30	5,123	-4	-20.0	30	3	31	4,914	-13.4	-27.0	28	20.7																			
500		5.740	-15.3	-30.6	28	8.5	31	5,755	-15.9	-31.4	26	7.6	31	5,785	-12.5	-27.3	26	16.4	30	5,875	-6.0	-28.4	10	4.5	31	5,633	-18.0	-30.1	28	22.8																			
400		6.531	-21.0	-35.1	28	9.0	31	6,541	-21.6	-35.5	26	9.4	31	6,561	-17.8	-30.5	26	16.8	30	6,642	-11.1	-28.8	10	5.5	31	6,413	-23.1	-34.9	28	25.9																			
300		7.390	-27.4	-39.5	28	10.7	31	7,397	-27.8	-41.2	26	11.0	31	7,452	-24.3	-35.5	26	20.5	30	7,586	-17.0	-38.4	29	7.6	31	7,284	-29.5	-41.0	28	27.8																			
200		8.345	-34.2	-45.6	29	12.3	31	8,348	-34.5	-45.6	26	12.7	31	8,414	-31.5	-48.9	26	22.5	30	8,577	-23.7	-40.2	9	7.7	31	8,207	-36.2	-47.2	28	27.0																			
100		9.601	-41.8	-51.8	28	14.0	31	9,601	-41.8	-51.8	26	14.0	31	9,601	-41.8	-51.8	26	22.5	30	9,648	-23.7	-40.2	9	7.7	31	9,257	-46.5	-52.7	28	31.1																			
250		10.619	-49.7		28	17.6	31	10,619	-50.6		29	15.6	30	10,709	-48.7		25	32.2	28	10,944	-41.5		29	13.0	31	10,458	-52.1		28	35.9																			
200		12.051	-56.6		27	20.0	31	12,038	-57.3		29	20.0	30	12,146	-57.3		26	33.4	27	12,419	-52.8		29	14.0	31	11,886	-56.7		28	38.9																			
175		12.898	-57.7		27	20.0	31	12,881	-58.6		29	18.4	30	12,944	-60.4		26	32.4	27	13,268	-59.1		29	13.6	31	12,732	-57.2		28	38.1																			
150		13.667	-59.6		27	18.7	31	13,845	-60.5		26	18.1	30	13,938	-63.3		26	29.1	27	14,218	-65.4		29	13.8	31	13,704	-58.3		28	30.1																			
125		14.998	-62.8		27	16.8	30	14,771	-62.8		26	16.0	30	15,053	-65.6		26	27.6	26	15,302	-67.9		29	11.2	31	14,846	-60.3		28	26.2																			
100		16.362	-65.8		27	13.4	29	16,342	-65.2		26	13.8	29	16,366	-65.2		26	16.8	25	16,460	-79.5		10	6.5	31	16,229	-62.8		28	22.3																			
75		17.712	-68.6		27	9.2	29	17,498	-65.8		26	8.5	26	17,722	-69.4		25	14.1	27	17,842	-80.2		05	4.5	30	17,607	-63.4		27	16.6																			
60		18.512	-68.5		27	7.4	28	18,510	-65.6		26	6.0	24	18,521	-68.1		25	9.4	23	18,606	-76.0		10	3.2	30	18,428	-63.1		27	13.6																			
45		19.451	-68.4		27	5.7	27	19,452	-64.0		26	4.2	26	19,451	-66.2		26	8.8	23	19,508	-70.8		10	4.4	28	19,372	-62.6		28	12.4																			
30		20.968	-68.3		27	3.8	25	20,574	-62.9		25	1.9	24	20,646	-63.7		26	4.9	23	20,605	-65.1		09	6.1	28	20,502	-61.1		29	10.6																			
15		21.988	-68.1		27	2.1	23	21,988	-60.1		25	1.1	22	21,980	-60.1		25	5.3	22	21,980	-60.1		07	6.8	25	21,846	-60.3		28	8.8																			
5		23.746	-71.7		27	2.0	21	23,759	-58.2		21	1.6	20	23,738	-58.0		29	5.3	23	23,789	-56.0		07	6.8	25	23,693	-58.6		28	4.8																			
25		24.901	-56.0		27	3.5	22	24,909	-56.3		29	2.4	22	24,886	-57.0		29	5.1	02	24,954	-54.9		07	5.9	23	24,844	-58.0		29	5.5																			
20		26.327	-53.8		29	7.2	19	26,328	-54.6		23	4.8	22	26,175	-54.3		29	6.0	02	26,182	-53.3		08	3.8	22	26,258	-57.1		28	6.0																			
15		28.174	-62.4		28	10.0	19	28,176	-53.3		23	9.5	18	28,166	-51.9		29	5.8	15	28,255	-48.8		04	1.7	19	28,071	-56.5		29	10.3																			
10		29.608	-68.8		28	22.6	15	30,815	-49.7		28	20.3	15	30,812	-48.3		28	17.3	17	31,020	-47.0		1	28	8.4	30	30,623	-56.1		28	15.0																		

## Average monthly values

DECEMBER 1979

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# SOLAR RADIATION INTENSITIES

Tabulated in langley's per minute on a surface normal to the direction of the sun.

U.S. EMAP-1954

MAUNA LOA OBSERVATORY, HI										TUCSON, AZ									
Sun's zenith distance										Sun's zenith distance									
A.M.					P.M.					A.M.					P.M.				
78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°		78.7°	75.7°	70.7°	60.0°	*	60.0°	70.7°	75.7°	78.7°	
Air mass										Air mass									
3.34	2.87	2.01	1.34	*	1.34	2.01	2.87	3.34		4.64	3.71	2.78	1.86	*	1.86	2.78	3.71	4.64	
7:00	1.22	1.28	1.36	1.51	1.58	1.47	1.36	1.17											
8:00	1.21	1.28	1.36	1.49	1.57	1.46	1.33	1.22											
9:00	1.20	1.28	1.36	1.49	1.57	1.46	1.33	1.22											
10:00	1.18	1.26	1.36	1.49	1.57	1.46	1.33	1.22											
11:00	1.22	1.31	1.38	1.52	1.57	1.50	1.38	1.29											
12:00	1.23	1.32	1.40	1.52	1.57	1.50	1.38	1.29											
13:00	1.22	1.30	1.40	1.52	1.57	1.50	1.38	1.29											
14:00	1.19	1.28	1.37	1.50	1.57	1.50	1.38	1.29											
15:00	1.18	1.26	1.36	1.49	1.57	1.46	1.33	1.22											
16:00	1.22	1.31	1.38	1.52	1.57	1.50	1.38	1.29											
17:00	1.23	1.32	1.40	1.52	1.57	1.50	1.38	1.29											
18:00	1.22	1.30	1.40	1.52	1.57	1.50	1.38	1.29											
19:00	1.21	1.28	1.36	1.49	1.57	1.46	1.33	1.22											
20:00	1.20	1.28	1.36	1.49	1.57	1.46	1.33	1.22											
21:00	1.18	1.26	1.36	1.49	1.57	1.46	1.33	1.22											
22:00	1.22	1.31	1.38	1.52	1.57	1.50	1.38	1.29											
23:00	1.23	1.32	1.40	1.52	1.57	1.50	1.38	1.29											
24:00	1.22	1.30	1.40	1.52	1.57	1.50	1.38	1.29											
25:00	1.19	1.28	1.37	1.50	1.57	1.50	1.38	1.29											
26:00	1.18	1.26	1.36	1.49	1.57	1.46	1.33	1.22											
27:00	1.22	1.31	1.38	1.52	1.57	1.50	1.38	1.29											
28:00	1.23	1.32	1.40	1.52	1.57	1.50	1.38	1.29											
29:00	1.22	1.30	1.40	1.52	1.57	1.50	1.38	1.29											
30:00	1.19	1.28	1.37	1.50	1.57	1.50	1.38	1.29											
31:00	1.18	1.26	1.36	1.49	1.57	1.46	1.33	1.22											
Average	1.24	1.32	1.41	1.53	1.63	1.52	1.41	1.32	1.24										

## NET RADIATION

Net radiation in langley's per day (8 a.m. to 8 a.m.) at Palmer, Alaska.

Date . . . . .	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Avg.
Langley's . . .	0	1	-	1	-18	7	0	- 2	3	8	1	3	5	5	11	- 1	n	6	130	18	- 29	- 21	- 17	- 12	- 31	11	- 52	- 77	- 49	- 41	- 31	- 56

## STORM SUMMARY

STATE	TORNADOES					HAILSTORMS				WINDSTORMS				LIGHTNING				HEAVY SNOWSTORMS AND BLIZZARDS				ICE STORMS				ALL OTHER			
	NUMBER	DAYS	DEATHS	INJURIES		DEATHS	INJURIES		*DAMAGE	DEATHS	INJURIES		*DAMAGE	DEATHS	INJURIES		*DAMAGE	DEATHS	INJURIES		*DAMAGE	DEATHS	INJURIES		*DAMAGE	DEATHS	INJURIES		*DAMAGE
				PROPERTY	CROPS		PROPERTY	CROPS			PROPERTY	CROPS			PROPERTY	CROPS			PROPERTY	CROPS			PROPERTY	CROPS			PROPERTY	CROPS	
LATE REPORTS																													
MISSING																													
CORRECTIONS																													
JUNE 1979																													
MINNESOTA																													



# REFERENCE NOTES

## OBSERVED EXTREMES OF TEMPERATURE AND PRECIPITATION -- BY STATES:

Dates in the table apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

+ And also on an earlier date or dates.

D Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of snowfall.

## CLIMATOLOGICAL DATA - METRIC UNITS: Data from airport unless otherwise specified.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

B Number of days maximum 21.1°C. or above for Alaskan Stations.

V Peak gust.

+ And also on an earlier date or dates.

U Indicates Urban site.

R Indicates Rural site.

Ø Station pressures apply to elevations shown in the "Elevations" table of the annual issue of this publication.

Conversion formulae to English Units are as follows:

1 foot = 0.3048 meters

°F. =  $9 \times \frac{5}{9} \text{°C} + 32$

1 inch = 25.4 millimeters

1 mile per hour = 0.447 meters per second

## HEATING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## COOLING DEGREE DAYS: Data from airport unless otherwise specified.

U Indicates Urban site.

R Indicates Rural site.

## STORM SUMMARY:

Ø Includes crop damage.

C Crop damage.

\* No occurrence of storms or unusual weather phenomena reported.

@ Includes heavy sleet storm.

# Freezing drizzle and freezing rain, commonly known as glaze.

Ø For breakdown of "All Others," and for detailed listing of other storms, see the Environmental Data and Information Service, NOAA, monthly publication STORM DATA.

† No Storm Data Report received for this State.

◇ Report Incomplete.

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50

2 \$50 to \$500

3 \$500 to \$5,000

4 \$5,000 to \$50,000

5 \$50,000 to \$500,000

6 \$500,000 to \$5 Million

7 \$5 Million to \$50 Million

8 \$50 Million to \$500 Million

9 \$500 Million to \$5 Billion

## RAWINSONDE DATA (Average Monthly Values):

All observations scheduled at 1200, G.C.T. Pressures shown under station names are the average monthly station pressures for the month of record, corrected to the height of the floors of the instrument shelters used for rawinsonde purposes. "Number of observations" refers to those of dynamic height only. Although the number of temperature observations at any given pressure surface is usually the same as for height, it is possible for temperature to be missing for one or more pressure surfaces of some observations. Dew Point averages are limited to those observations with temperatures warmer than -40°C. Observations of wind speed and direction are sometimes lost due to limiting angles, i.e., elevation angles less than 6° above the horizon, or any obstruction above the horizon. The temperature and wind values are based on 15 or more observations at the surface or 5 observations at a standard pressure level for temperature and 10 for wind. Dew Point data are not published for standard pressure surfaces for which less than 5 observations are available. Dew Point data are computed and expressed on the basis of vapor pressure over water. Unless otherwise indicated, they are obtained from carbon hygrometers. These average values for standard pressure surfaces were obtained by rawinsondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature and dew point in degrees Celsius, and resultant winds in tens of degrees and meters per second.

\* Rawinsondes at this station were equipped with hypsometers to permit more accurate evaluations of pressure, and consequently height, at pressures lower than 50 mb. These rawinsondes were carried aloft by special high altitude balloons, in an effort to consistently reach higher altitudes.

+ Observations for these stations are scheduled at 0000 G.C.T.

† Dew Point temperatures are based on a minimum of 5 observations. Therefore, due to the lesser number of Dew Point observations at the higher levels comparison with dry-bulb temperatures should be made with care. Dew Point temperatures replaced Relative Humidity January 1967.

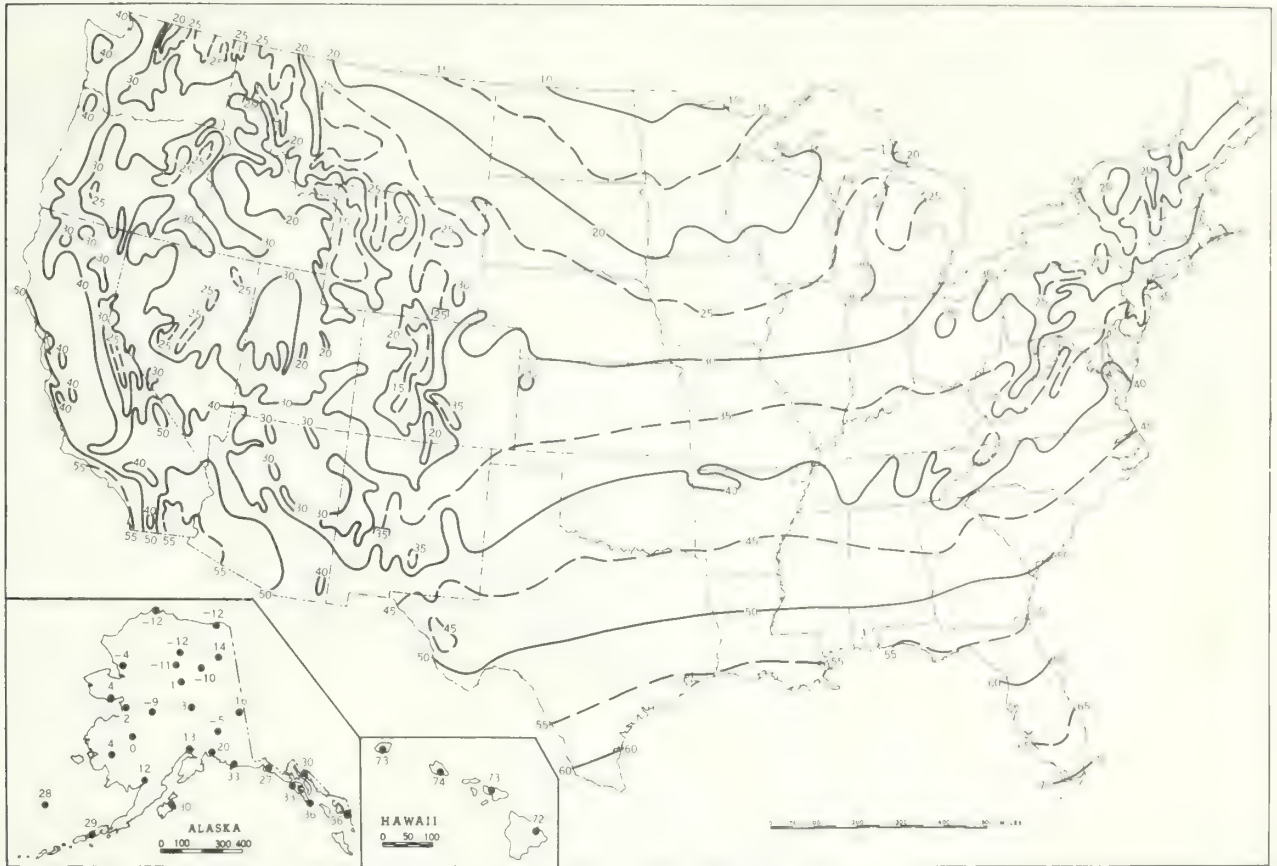
SOLAR RADIATION INTENSITIES: Langley is the unit used to denote one gram calorie per square centimeter. An explanation of the formula used in computing the air mass values for each station appears in the February 1957 issue, Vol. 8, No. 2, page 63, of this publication.

/	Clouds Present	DM	Moderate Dust	HM	Moderate Haze	KS	Slight Smoke
*	Values corresponding to true solar noon	DS	Slight Dust	HS	Slight Haze	M	Moderate Haze-indeter-
BD	Blowing Dust	F	Fog	I	Intense Haze-indeterminable		minable
BN	Blowing Sand	GF	Ground Fog	K	Smoke	N	Sand
D	Dust	H	Haze	KI	Intense Smoke	S	Slight Haze-indeter-
DI	Intense Dust	HI	Intense Haze	KM	Moderate Smoke		minable

NET RADIATION: The measurement is made with a CSIRO FUNK net exchange radiometer over a plot of sod. The value represents the total incoming minus the total outgoing radiation of all wave lengths.

These data are of an experimental nature and are published as received from the Palmer Exp. Station. The instrument with which they were measured has not been checked by the NOAA, National Weather Service.

Chart 1. A. Normal Daily Average Temperature (°F. 1941-70), December.



B. Temperature Departure from 30 - Year Mean (°F 1941-70), December 1979

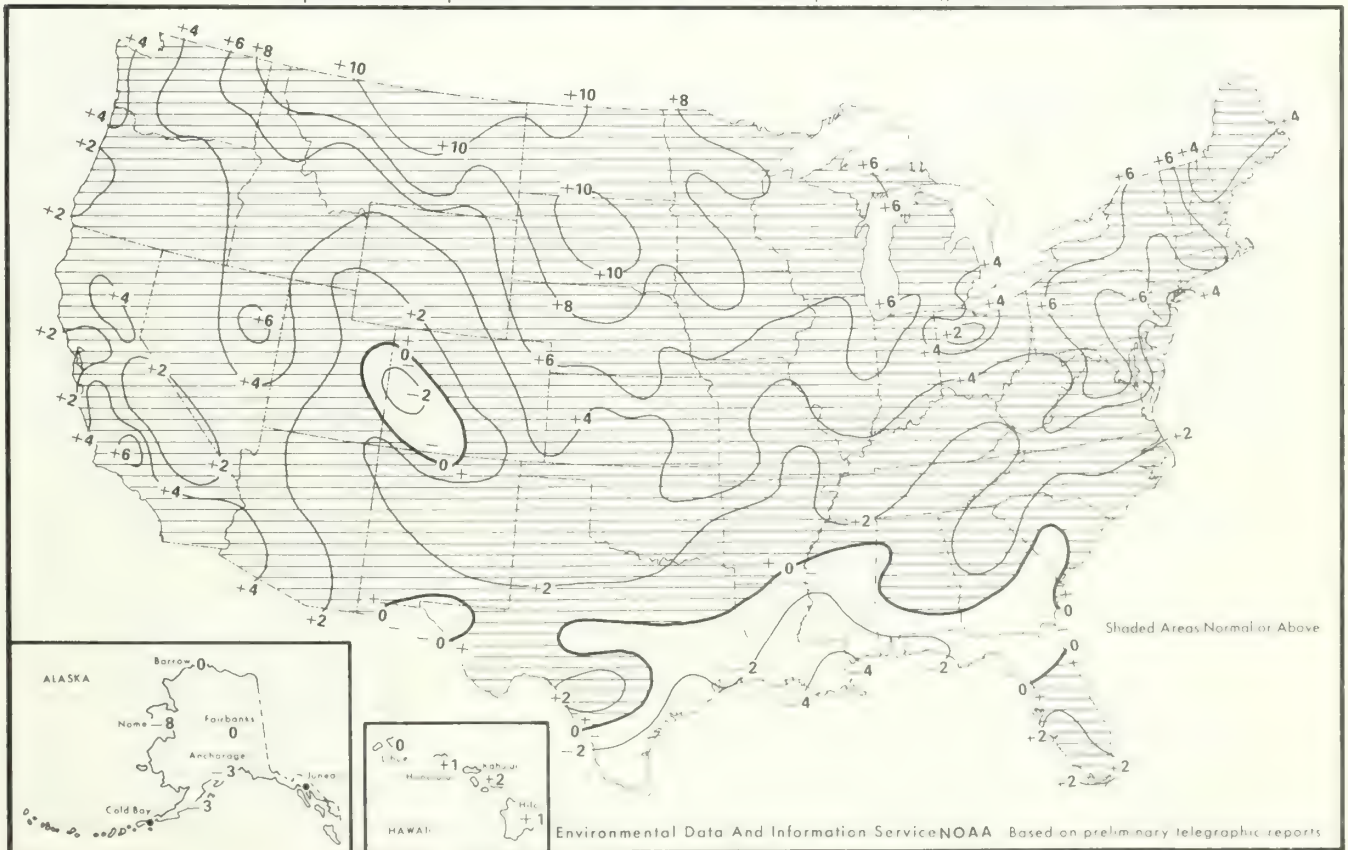
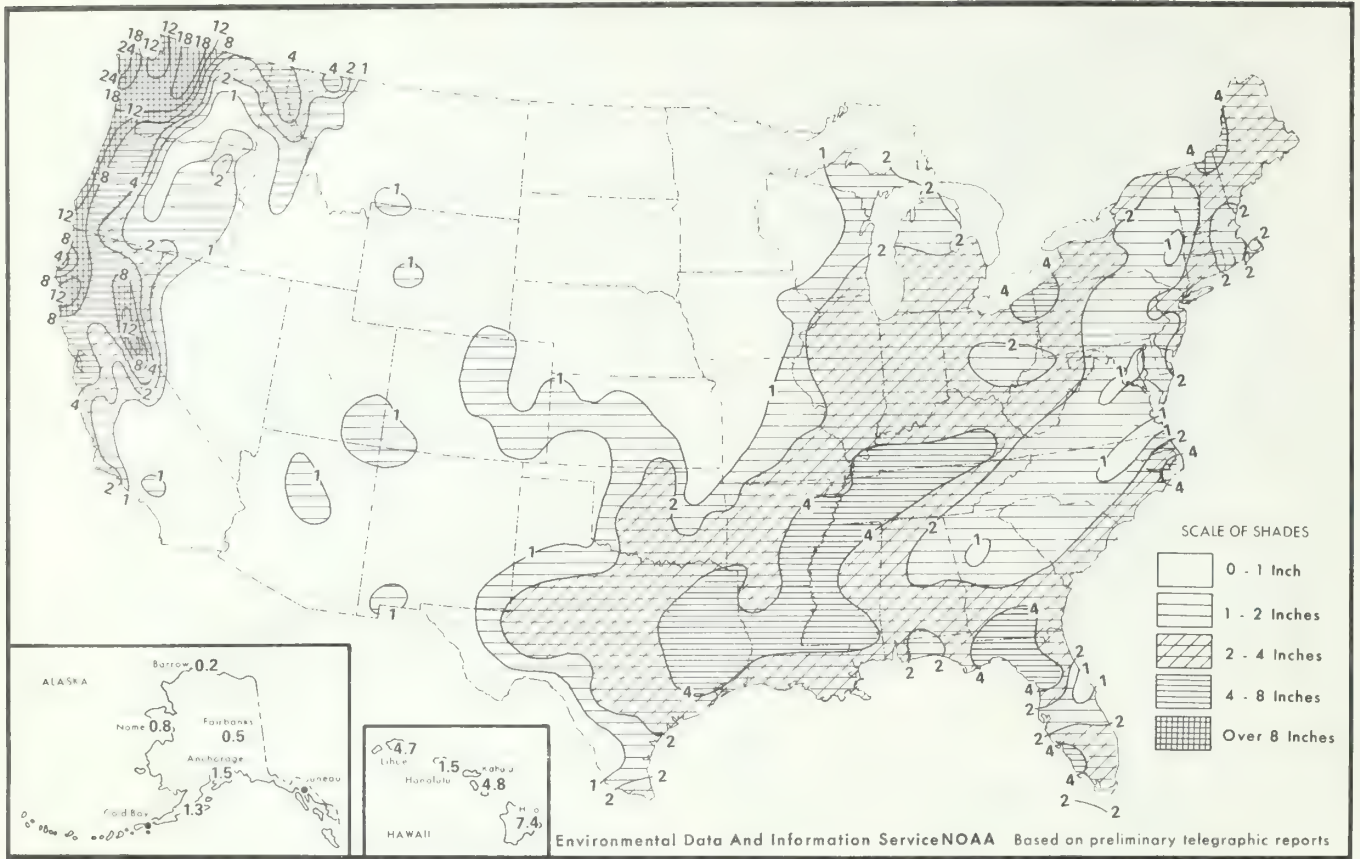




Chart II. A. Total Precipitation (Inches), December 1979



B. Percentage of Normal Precipitation, December 1979

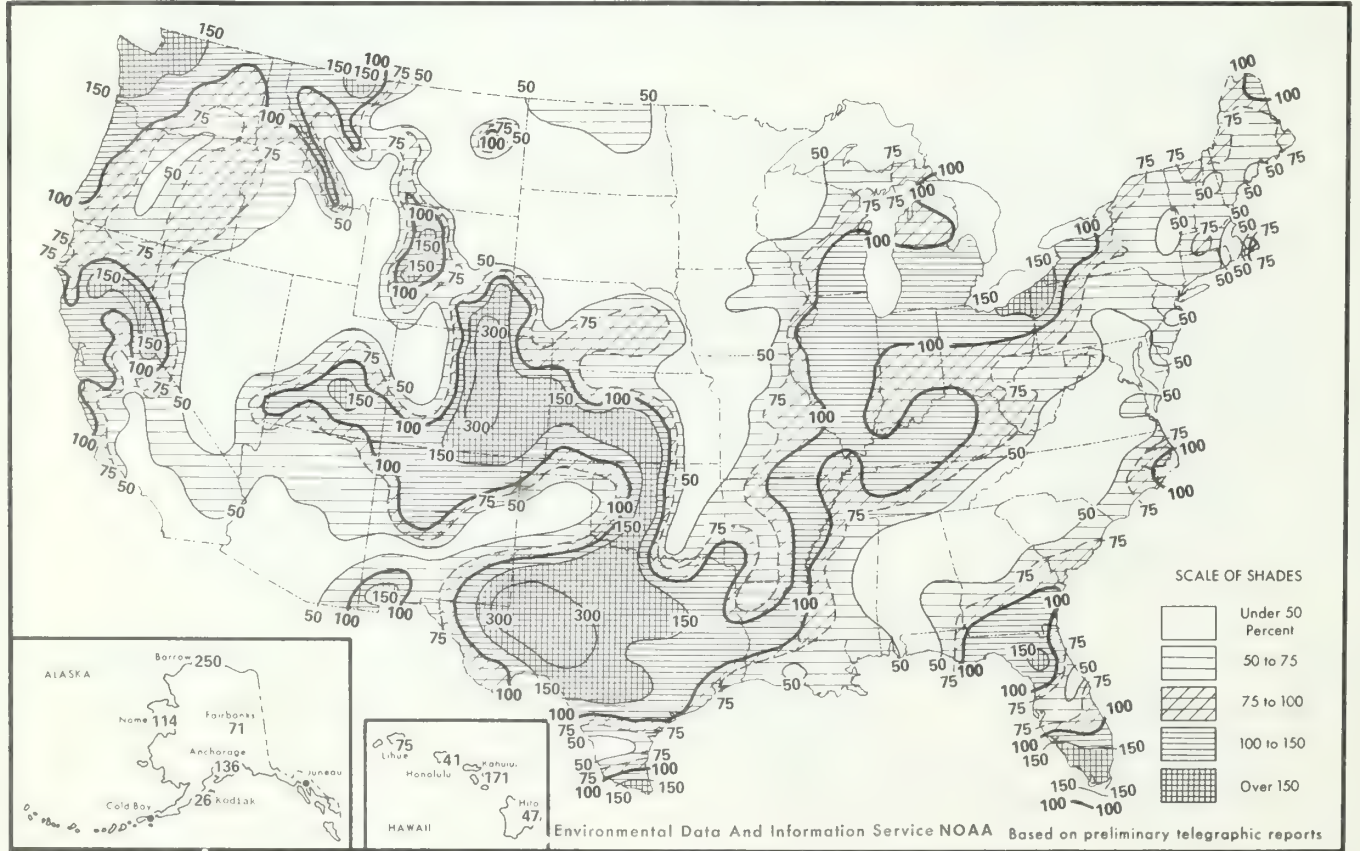




Chart III. Tracks of Centers of Anticyclones at Sea Level, December 1979

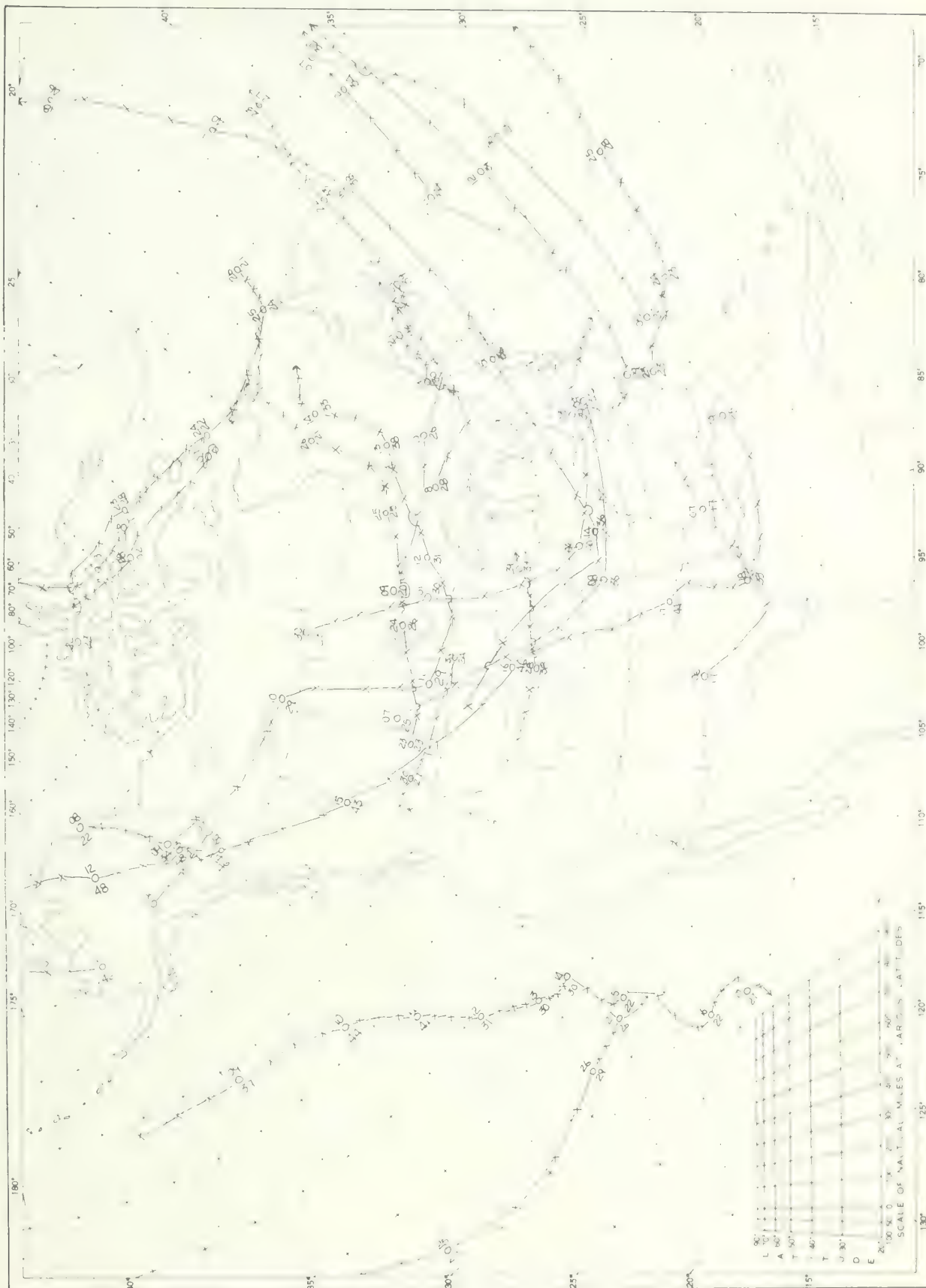
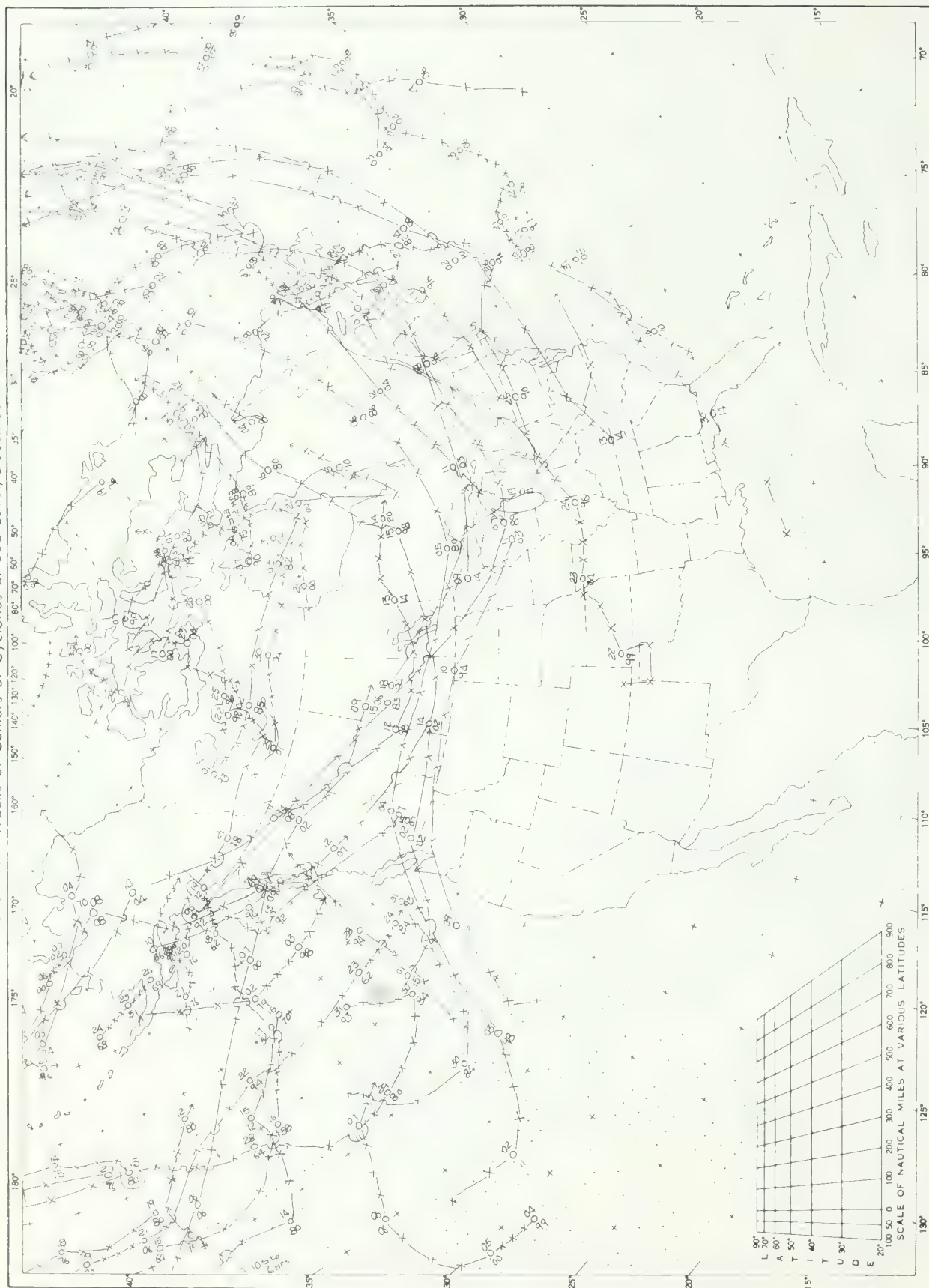


Chart IV Tracks of Centers of Cyclones at Sea Level, December 1979



Circle indicates position of center at 7:00 a.m. E.S.T. Figure above circle indicates date, figure below, pressure to nearest millibar.  
X's indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.





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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY



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*Samuel B. Mitchell*

DIRECTOR  
NATIONAL CLIMATIC CENTER

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# CLIMATOLOGICAL DATA

## NATIONAL SUMMARY

YEAR 1979

### GENERAL SUMMARY OF WEATHER CONDITIONS

Lewis A. Blodgett, Meteorological Advisor, NCC

The year began with the third successive severely cold January over a large part of the United States, an unprecedented event in the climatological records. In contrast to the previous two Januaries, the cold weather extended west of the Rockies to the Pacific Coast, with the exception of coastal California, which with New England, averaged slightly above normal temperatures. Several midwestern stations reported their coldest January of record.

Heavy snow accompanied the cold. Again, several stations in the central United States reported their snowiest January. In fact, most of the country reported above normal amounts of precipitation. Record amounts fell in New England with attendant flooding, as successive coastal storms moved along the seaboard; the relatively mild temperatures in this area caused the precipitation to fall mostly as rain.

The cold weather of the previous month continued throughout the entire country except the southern Rockies, parts of Nevada, California, and Oregon. The Northeast, which escaped severe cold in January, was covered with Arctic air for two weeks during February, with many low temperature records established. Three consecutive severe winters went into the record books.

Precipitation during February was above normal over most of the country except the Central Plains northeastward across the Great Lakes. During the 17th-19th, a storm originating in the Gulf of Mexico spread record or near-record amounts of snow from Georgia northeastward across the Atlantic coastal states. Washington, D.C., had a record 24-hour amount for February of 18.7 inches, with deeper amounts along the coastal areas of Maryland and Delaware. In the Northern Plains, heavy snow occurred during the month with Bismarck, North Dakota, reporting a February record of 25.6 inches.

March brought a welcome turnabout in temperatures. In contrast to the previous two months, warmer than normal temperatures prevailed across the country, except for some areas in the

Northern Plains, extreme Southwest, and Florida. Records were set with temperatures in the mid-80's on the 30th in the mid-Atlantic states. Heavy precipitation occurred in the Southwest and the central states. Florida was rather dry.

Heavy rains and flooding characterized April in the Southeast, with some stations reporting their wettest April. Severe damage occurred in Jackson, Mississippi, as the Pearl River reached a record crest. The Northwest and Northern Plains also experienced above normal precipitation, with the Southwest, Southern Plains, and western Great Lakes region comparatively dry. Temperatures averaged 8° below normal in the extreme Northern Plains, with cooler than normal prevailing in most areas east of the Rockies except New England and parts of the Southeast.

In contrast to April, May was wet in the Southwest, with a record of 1.39 inches for the month at Winslow, Arizona. Sheridan, Wyoming, reported a record May snowfall amount of 12.5 inches. Rain continued heavy in the Southeast, and was above normal in New England. Temperaturewise, the West, from the Plateau to the Pacific Coast, and the Atlantic Coast, including New England, were warmer than normal. Slightly cooler than normal temperatures prevailed in most of the remainder of the nation.

June was dry west of the Rockies, with spotty heavy precipitation throughout the rest of the country. However, this sporadic pattern left many areas quite below their normal June rainfall. Warm weather prevailed in the Plateau region and extreme Southwest westward to the coast. However, cooler than normal temperatures were the rule from New England southwestward to include New Mexico. The Southeast was especially cool, with Raleigh, North Carolina, and Columbia, South Carolina, for example, reporting their coolest June.

July rainfall was much more generous than June, with ample rain in most of the country. The normally dry Southwest and Plateau area received

# GENERAL SUMMARY OF WEATHER CONDITIONS

YEAR 1979

much more than normal precipitation. Two tropical storms, Bob and Claudette, caused heavy rains and flooding along the Gulf Coast, up to 35 inches for the month near Houston, Texas. Spotty dry areas persisted in the Northeast and Great Lakes area. Temperatures averaged slightly above normal in the Central Plains eastward to the middle Atlantic Coast, and warmer than normal elsewhere. One striking feature was a 5.8 inch snowfall at Stampede Pass, Washington, on the 1st, a new July record. Mount Washington, New Hampshire, also recorded snow during July, during a Northeast cool spell early in the month.

August was another wet month as most of the nation experienced above normal precipitation. Divergent locations such as Rochester, Minnesota, Columbus, Ohio, and Denver, Colorado, reported their wettest August. But some areas, such as the southern Atlantic coastal and Piedmont, were dry. Temperatures were quite variable within the month; as early in the month warm, showery conditions prevailed in the East, and again near the end, however, it was very cool with some frost in the Northeast and North Central during the third week. The month ended with the Northwest significantly warmer than normal, with the rest of the country near average, except somewhat cooler in the central United States.

Extreme precipitation contrasts characterized September. Hurricanes David and Frederic aided in heavy rainfall amounts in the East, eastward of a Texas-Michigan line. Locations such as Norfolk, Virginia, Nashville, Tennessee, Louisville, Kentucky, experienced their wettest September. However, west of this area, very dry conditions prevailed. Many stations, such as Springfield, Illinois, Milwaukee, Wisconsin, and Grand Rapids, Michigan, reported their driest month of record, with amounts in the trace-0.02 range. The entire West was dry, with the exception of the Northwest coast.

September was a warm month, except for a strip running northeast from eastern Texas to New York. The West was especially warm. San Diego, California, and Salt Lake City, Utah, for example, experienced their warmest September.

October continued warm in the West, with some stations reporting high October extremes, if not means, such as 103° on the 1st at Abilene, Texas. The area of the Northern Plains eastward across the Great Lakes to New England and extending southward to Tennessee and Louisiana were below normal temperature, as repeated polar outbreaks kept readings down. Dry weather accompanied the heat in the Southwest. Florida and southern Georgia, as well as North Dakota, were dry also. Elsewhere, especially in the North Central and Northeast, precipitation was mostly ample. An unusual snowstorm in the Northeast on the 10th gave record amounts for so early in the season. At Worcester, Massachusetts, 7.5 inches fell.

During November, temperatures were above normal in the eastern third of the country. New York City had its warmest November. In the West, colder than normal was the rule. Precipitation was heavy in the Central and Western Plains and the Southeast. Colorado Springs, Colorado, reported its snowiest November, 19.1 inches. In contrast, it was the first November of the century without even a trace of snow at Albany, New York.

The 1979-80 winter started mild as December averaged considerably warmer than normal over most of the country, up to 10° in the Northern Plains and Rockies. Only a narrow area near the Gulf Coast was colder than normal. Precipitation was deficient over a large part of the country, especially in the Northern Plains and parts of the Southeast. However, the southern Rockies and western Texas were wet.

The year ended with cities such as Jackson, Mississippi, Nashville, Tennessee, Louisville, Kentucky, and Sault St. Marie, Michigan, reporting their greatest annual amounts of precipitation.



YEAR 197



### MAXIMUM SHORT DURATION PRECIPITATION

STATION	Maximum precipitation in inches (5 to 200 minutes)										STATION	Maximum precipitation in inches (5 to 180 minutes)										STATION	Maximum precipitation in inches (5 to 180 minutes)												
	5	10	15	20	30	45	60	90	120	150		180	5	10	15	20	30	45	60	90	120		150	180	5	10	15	20	30	45	60	90	120	150	180
NORTH LITTLE ROCK, ARKANSAS											BENTON FIELD, CALIFORNIA											BISHOP, CALIFORNIA													
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JAN TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	JAN TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	JAN TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000
FEB DATE	12	01	02	03	04	05	06	07	08	09	10	FEB DATE	12	01	02	03	04	05	06	07	08	09	10	FEB DATE	12	01	02	03	04	05	06	07	08	09	10
FEB TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	FEB TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	FEB TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000
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YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11
YEAR MONTH	01	02	03	04	05	06	07	08	09	10	11	YEAR MONTH	01	02	03	04	05	06																	

YEAR 197



## YEAR 1979



$$\forall (A \in \mathcal{A}) \exists \delta(A) > 0$$

2



# MAXIMUM SHORT DURATION PRECIPITATION

YEAR 1970

		Maximum precipitation in inches (5 to 180 minutes)																	
		5	10	15	20	30	45	60	90	120	150	180							
		1	2	3	4	5	6	7	8	9	10	11							
		12	13	14	15	16	17	18	19	20	21	22							
		23	24	25	26	27	28	29	30	31	32	33							
		34	35	36	37	38	39	40	41	42	43	44							
		45	46	47	48	49	50	51	52	53	54	55							
		56	57	58	59	60	61	62	63	64	65	66							
		67	68	69	70	71	72	73	74	75	76	77							
		78	79	80	81	82	83	84	85	86	87	88							
		89	90	91	92	93	94	95	96	97	98	99							
		100	101	102	103	104	105	106	107	108	109	110							
		111	112	113	114	115	116	117	118	119	120	121							
		122	123	124	125	126	127	128	129	130	131	132							
		133	134	135	136	137	138	139	140	141	142	143							
		144	145	146	147	148	149	150	151	152	153	154							
		155	156	157	158	159	160	161	162	163	164	165							
		166	167	168	169	170	171	172	173	174	175	176							
		177	178	179	180	181	182	183	184	185	186	187							
		188	189	190	191	192	193	194	195	196	197	198							
		199	200	201	202	203	204	205	206	207	208	209							
		210	211	212	213	214	215	216	217	218	219	220							
		221	222	223	224	225	226	227	228	229	230	231							
		232	233	234	235	236	237	238	239	240	241	242							
		243	244	245	246	247	248	249	250	251	252	253							
		254	255	256	257	258	259	260	261	262	263	264							
		265	266	267	268	269	270	271	272	273	274	275							
		276	277	278	279	280	281	282	283	284	285	286							
		287	288	289	290	291	292	293	294	295	296	297							
		298	299	300	301	302	303	304	305	306	307	308							
		309	310	311	312	313	314	315	316	317	318	319							
		320	321	322	323	324	325	326	327	328	329	330							
		331	332	333	334	335	336	337	338	339	340	341							
		342	343	344	345	346	347	348	349	350	351	352							
		353	354	355	356	357	358	359	360	361	362	363							
		364	365	366	367	368	369	370	371	372	373	374							
		375	376	377	378	379	380	381	382	383	384	385							
		386	387	388	389	390	391	392	393	394	395	396							
		397	398	399	400	401	402	403	404	405	406	407							
		408	409	410	411	412	413	414	415	416	417	418							
		419	420	421	422	423	424	425	426	427	428	429							
		430	431	432	433	434	435	436	437	438	439	440							
		441	442	443	444	445	446	447	448	449	450	451							
		452	453	454	455	456	457	458	459	460	461	462							
		463	464	465	466	467	468	469	470	471	472	473							
		474	475	476	477	478	479	480	481	482	483	484							
		485	486	487	488	489	490	491	492	493	494	495							
		496	497	498	499	500	501	502	503	504	505	506							
		507	508	509	510	511	512	513	514	515	516	517							
		518	519	520	521	522	523	524	525	526	527	528							
		529	530	531	532	533	534	535	536	537	538	539							
		540	541	542	543	544	545	546	547	548	549	550							
		551	552	553	554	555	556	557	558	559	560	561							
		562	563	564	565	566	567	568	569	570	571	572							
		573	574	575	576	577	578	579	580	581	582	583							
		584	585	586	587	588	589	590	591	592	593	594							
		595	596	597	598	599	600	601	602	603	604	605							
		606	607	608	609	610	611	612	613	614	615	616							
		617	618	619	620	621	622	623	624	625	626	627							
		628	629	630	631	632	633	634	635	636	637	638							
		639	640	641	642	643	644	645	646	647	648	649							
		650	651	652	653	654	655	656	657	658	659	660							
		661	662	663	664	665	666	667	668	669	670	671							
		672	673	674	675	676	677	678	679	680	681	682							
		683	684	685	686	687	688	689	690	691	692	693							
		694	695	696	697	698	699	700	701	702	703	704							
		705	706	707	708	709	710	711	712	713	714	715							
		716	717	718	719	720	721	722	723	724	725	726							



YFAD 1,7.



## YEAR 1979

— 3 —



$$\forall f \in A \quad \exists \delta \in \mathbb{R}.$$
- 12 -





cf. 2.9

19



## YEAR 1979

- 16



• 1998 • 1 • 7

- 17 -



YEAR 1979

- 1

$$P(A) = 1/2,$$

- 19 -



YEAR 1975



10. *Journal of the American Medical Association*, 1990; 263: 1033-1037.

- 21 -

YEAR 1979

22 -



$$\forall \epsilon \in \mathbb{R}^+ \quad \exists \delta \in \mathbb{R}^+ \quad \forall x \in \mathbb{R} \quad |x - 2| < \delta \Rightarrow |x^2 - 4| < \epsilon$$



## YEAR 1979

## \* C.A. 1.7

2°







$$A = \begin{bmatrix} 1 & 2 \\ 2 & 7 \end{bmatrix}$$
3



## YEAR 1979

28

$\frac{1}{2} \mu = 1$

- 29 -



### MAXIMUM SHORT DURATION PRECIPITATION

1971

- 31 -



Maximum precipitation in inches



$\rho = \frac{1}{2}$

4

## MAXIMUM SHORT DURATION PRECIPITATION

This table contains statistics of maximum amounts of precipitation during the calendar year indicated. Data are for stations equipped with recording gages and are from airport locations unless otherwise noted. The ending time and date is included in the table for each monthly maximum amount except in cases of zero and trace events. Maximum amounts for the year with month of occurrence are also indicated for each of the 12 time periods. Annual extremes and New records are based on available data. Some periods of record may be missing.

Beginning with data for 1973 and continuing to the present time, only the maximum amount of precipitation that occurred during the month for each of the 12 time periods shown were determined. These maximum amounts may be from different storms, and the threshold intensities required for Excessive Precipitation prior to 1973 are not a consideration. (A detailed explanation of the methods and threshold intensities used prior to 1973 can be found in the publications listed in the following paragraph.)

Publication of Data: A summary of maximum precipitation data for the years prior to 1896 was published in the annual report of the Chief of the Weather Bureau for 1895-1896. Excessive precipitation data for the period 1881-1896 were published in the annual report of the Chief of the Weather Bureau 1896-1897. Data for the years 1897 through 1934 have been published in the appropriate annual reports of the Chief of the Weather Bureau. For the years 1935 through 1949 these data were published in the appropriate issue of the United States Meteorological Yearbook. The annual issues of the Climatic Data National Summary present Excessive Precipitation each year 1950-1972 and Maximum Precipitation for 1973 and succeeding years.

U Indicates Urban sites

M No Record

T Trace event

+ Also occurred on an earlier date or dates

\* Equals or exceeds previous record for duration and period of record. Period of record, updated through the current year, includes data compiled in Weather Bureau Technical Paper No. 2, revised 1963. This publication contains extreme data for 296 first order stations from beginning of record through 1961. Due to data limitations, new records are denoted only for 5, 10, 15, 30, 60, 120, and 180 minutes. (The 15 minute amount was not computed for 1936-1943.)

District of Columbia - See Virginia.



# SUNSHINE, AMOUNT AND PERCENT

YEAR 1979

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
ALABAMA																										
BIRMINGHAM	107	34	109	35	230	62	228	58	236	58	289	67	211	54	292	71	137	37	279	75	211	67	197	64	2547	64
MONTGOMERY	112	35	112	36	273	74	229	59	230	58	248	58	185	42	245	55	188	51	267	76	194	61	112	44	2145	54
ALASKA																										
ANCHORAGE	90	21	200	79	167	45	226	51	276	51	288	47	288	48	202	41	178	40	57	18	34	18	65	11	1885	81
UNALASKA	181	59	198	67	152	36	192	37	351	67																
NOME	53	10	196	87	227	56	157	33	278	49	192	30	194	32	47	9	132	34	76	25	27	14	18	58	1620	75
ARIZONA																										
FLAGSTAFF	175	47	206	68			326	81	282	65	482	91	765	67	754	94	368	99	167	47	255	55	245	60		
PHOENIX	174	46	280	81	284	76	375	96	791	91	407	95	467	93	370	88	337	81	317	80	272	67	288	70	3827	66
TUCSON	204	66	274	80	316	85	379	97	390	92	391	90	393	90	369	88	390	98	336	95	188	60	288	70	1848	89
YUMA	207	65	279	90	301	81	382	98	407	94	424	99	429	98	391	94	362	97	337	88	189	50	282	61	4093	92
ARKANSAS																										
FORT SMITH	85	28	113	37	189	50	242	62	251	58	312	72	297	65	208	74	208	62	277	75	272	66	205	71	2680	71
NO. LITTLE ROCK	157	50	176	58	279	75	304	78	337	78	348	80	308	71	289	69	295	79	260	74	207	66	205	71	1187	72
CALIFORNIA																										
EUREKA	170	46	66	20	181	44	240	60	275	61	181	40	341	61	385	88	277	78	183	58	177	49	184	50	2703	81
FRESNO	126	42	187	60	272	71	251	68	424	97	417	99	411	97	467	97	367	98	492	84	216	70	170	57	7698	81
SALT LAKE	185	62	171	57	278	75	336	84	417	94	441	98	436	96	411	94	388	98	462	70	179	51	195	67	3651	82
SACRAMENTO	114	38	135	45	237	64	196	87	426	96	444	100	446	98	413	98	384	97	272	78	213	71	151	51	1552	51
SAN DIEGO	206	65	251	81	266	70	298	78	233	58	271	67	300	69	262	63	308	82	241	68	251	68	267	81	3144	71
COLORADO																										
DENVER	231	77	231	77	290	78	324	82	291	63	366	80	371	82	304	77	320	80	252	73	199	68	239	82	3431	77
GRAND JUNCTION	102	31	109	31	176	47	176	64	270	61	350	78	345	76	280	77	287	78	257	74	191	54	172	59	2810	63
WYDEN	257	84	257	85	314	87	357	90	316	77	394	89	391	87	366	87	342	82	277	82	219	84	228	77	3799	81
CONNECTICUT																										
HARTFORD	120	41	182	61	218	58	232	58	246	54	339	74	307	67	304	68	280	67	140	41	180	41	184	58	2351	57
DISTRICT OF COLUMBIA																										
WASHINGTON NATIONAL	106	35	127	40	240	65	191	48	217	55	290	65	272	61	288	68	224	68	188	54	188	52	180	58	2498	56
FLORIDA																										
APALACHICOLA	142	44	153	49	273	73	252	65	349	82	357	85														
JACKSONVILLE	201	62	173	54	293	79	301	78	315	74	311	78	321	74	306	75	173	47	200	60	244	76	185	61	1714	71
KEY WEST	294	76	251	79	314	84	313	82	314	82	318	88	322	77	288	68	244	68	238	64	211	64	200	70	1700	75
MIAMI	172	52	212	67	285	77	292	76	177	42	351	88	351	68	313	78	282	78	270	75	216	66	200	70	3120	71
TAMPA	195	56	197	63	263	76	310	80	322	77	337	81	297	68	224	55	148	40	187	71	217	67	166	51	2881	68
GEORGIA																										
ATLANTA	178	44	181	44	232	62	204	57	229	53	284	66	274	51	281	68	165	42	259	74	195	62	183	55	1540	57
MARIETTA	178	56	189	61	276	74	270	69	317	74	293	69	318	69	312	69	132	267	76	111	68	195	61	1821	63	
SAVANNAH	148	53	149	45	298	70	280	68	283	59	259	61	219	49	260	58	100	24	284	60	208	75	147	40	2841	50
HAWAII																										
HILU	147	43	103	32	190	51	116	31	194	48	185	46	188	48	207	56	292	79	181	44	186	48	178	52	1130	48
MOLOKAI	187	56	96	30	288	77	295	78	286	70	290	72	300	74	305	77	311	82	229	61	202	66	204	68	3032	68
KAHULUI	191	56	103	38	272	73	225	59	299	73	254	63	296	72	300	77	294	82	213	70	111	69	231	68	1465	67
LIHUE	158	47	129	40	245	66	241	63	305	75	276	68	304	74	314	79	294	80	242	67	184	48	132	39	1797	63
IDAHO																										
BOISE	77	26	87	30	285	77	279	59	352	77	329	71			306	71	342	91	146	67	170	47	74	28		
POCATELLO	126	43	119	40	266	72	282	70	265	58	371	81	305	68	320	74	350	93	170	67	176	47	185	48	3001	67
ILLINOIS																										
CHICAGO	126	41	111	37	166	45	232	59	243	55	313	71	267	46	274	61	261	70	178	54	151	49	138	46	2191	54
CHICAGO MIDWAY	119	40	121	41	166	45	213	54	246	77	312	73	321	70	251	58	267	79	173	50	179	37	174	58	2605	69
MOLINE	100	34	127	42	120	32	176	44	283	68	237	52	208	48	245	57	294	79	181	51	120	40	145	51	2245	51
PEORIA	152	51	149	50	110	30	168	48	329	73	318	74	248	57	257	65	318	66	203	59	119	47	151	53	2587	58
SPRINGFIELD	119	40	177	46	95	26	193	48	324	71	332	74	291	64	304	72	319	68	194	56	121	40	139	48	2569	58
INDIANA																										



# SUNSHINE, AMOUNT AND PERCENT

YEAR 1979

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
WINNEBAGO	178	63	171	46	129	35	215	53	233	50	295	62	267	56	219	50	169	50	111	33	90	32	119	45	2175	49
MINNEAPOLIS	201	70	189	65	137	37	210	52	262	57	270	58	281	59	206	47	258	69	167	49	110	38	115	42	2406	54
MISSISSIPPI JACKSON	100	31	105	34	222	60	175	45	215	50	338	79	213	49	271	66	236	64	296	84	221	70	190	61	2581	58
MISSOURI																										
COLUMBIA REGIONAL	151	50	135	45	136	37	152	38	267	60	288	65	223	49	313	74	308	83	195	56	150	50	165	56	2483	56
KANSAS CITY	224	74	222	74	280	76	294	74	281	63	275	62	201	44	276	65	321	86	219	63	174	58	156	53	2924	66
ST. LOUIS	145	50	124	41	137	37	159	40	269	65	305	69	238	53	294	70	296	79	182	52	136	45	161	55	2474	56
SPRINGFIELD	117	38	126	42	194	52	259	65	242	55	296	67	251	56	301	72	311	83	221	63	149	49	162	54	2629	59
MONTANA																										
HELENA	135	49	116	41	163	50	217	53	243	52	285	61	307	65	226	52	321	85	216	64	151	53	126	47	2532	57
BUTTE	162	58	127	44	195	53	173	42	291	62	349	73	365	76	268	61	329	82	142	42	122	43	78	29	2580	56
BOZEMAN	174	64	154	53	275	74	281	68	338	72	425	88	417	86	384	87	328	87	224	67	157	57	112	43	3267	73
HELENA	145	53	127	44	248	67	181	44	293	63	327	69	349	73	282	64	315	84	174	51	142	50	74	28	2660	60
MISSOULA	124	44	57	20	204	46	258	55	311	66	359	75	323	74	327	74	327	87	213	63	150	53	70	26	2585	58
NEBRASKA																										
LINCOLN	160	54	158	53	207	56	214	54	269	60	305	67	281	61	315	74	341	91	214	62	177	59	178	62	2819	63
NORTH PLATTE	201	67	177	59	219	59	264	66	297	66	321	71	316	69	313	78	335	89	233	68	199	67	195	68	3088	69
OMAHA (NORTH)	151	51	156	53	175	47	176	44	283	63	302	67	244	53	271	63	330	88	167	48	156	52	147	51	2560	57
VALENTINE	206	70	205	69	200	54	247	61	310	68	334	73	329	71	303	70	330	88	203	59	170	58	206	73	3041	68
NEVADA																										
LAS VEGAS	185	61	186	62	234	63	284	72	324	73	386	86	366	81	291	69	340	91	228	66	193	64	225	77	3243	73
RENO	163	53	246	81	294	79	357	91	390	89	418	95	401	90	348	83	338	91	310	89	257	84	248	82	3773	85
SPRINGFIELD	155	51	196	66	333	90	374	94	470	97	440	98	438	96	403	95	370	99	296	85	234	78	201	69	3871	87
SPRINGFIELD	158	53	146	49	237	64	249	62	339	76	377	83	378	83	293	69	356	95	209	61	187	63	162	56	3092	69
NEW HAMPSHIRE																										
CONCORD	101	35	197	67	149	40	193	48	214	47	325	71	297	64	242	56	261	70	152	44	117	40	128	45	2376	53
MT. WASHINGTON OBS.	51	17	157	53	99	26	140	34	114	25	189	40	155	33	93	21	187	49	67	25	84	29	93	33	1449	32
NEW JERSEY																										
ATLANTIC CITY	171	33	136	45	244	66	189	48	219	49	222	50	170	37	302	71	251	67	172	50	141	50	194	66	2351	53
TRENTON, N.J.	105	35	135	45	245	61	187	47	208	47	250	56	246	54	326	53	207	55	156	45	130	43	170	59	2245	50
NEW MEXICO																										
ALBUQUERQUE	181	58	222	72	243	66	275	70	295	68	342	79	348	79	329	79	289	78	293	84	233	75	243	80	3292	74
ROSWELL	194	61	245	70	261	70	303	78	327	76	330	77	309	71	306	74	260	70	274	66	188	60	161	52	3118	70
NEW YORK																										
ALBANY	81	27	165	57	145	39	197	49	212	47	273	60	263	57	224	52	229	61	108	31	88	30	107	38	2095	47
BUFFALO	72	24	141	48	168	45	165	46	200	44	259	57	272	59	207	48	233	62	102	30	101	34	84	30	2023	45
ROCHESTER	60	21	122	41	168	45	164	41	251	55	291	63	377	66	224	52	284	71	105	31	92	32	92	37	2141	48
SYRACUSE	19	13	136	46	178	48	173	43	253	56	305	66	315	68	240	56	273	77	94	28	66	23	95	34	2183	49
SYRACUSE	57	19	134	46	142	38	158	39	172	38	192	42	272	56	178	41	222	59	87	25	60	21	78	28	1751	39
NORTH CAROLINA																										
ASHEVILLE	179	58	167	55	219	59	244	62	229	52	233	53	189	43	221	53	107	29	223	64	179	58	196	65	2386	54
CAROL WATKINS	192	61	148	48	244	66	169	48	180	41	192	44	200	45	235	57	100	27	238	68	165	53	172	57	2258	51
CHARLOTTE	178	57	175	57	254	69	270	69	275	63	287	66	294	67	104	73	174	47	256	73	184	59	188	62	2839	64
DURHAM	172	55	146	48	272	73	254	64	196	45	238	54	220	50	276	66	171	46	256	73	201	65	208	69	2610	59
FAYETTEVILLE	168	54	172	56	237	64	196	50	200	46	215	49	207	47	237	57	149	40	255	73	191	62	179	59	2406	54
WILMINGTON	200	63	132	47	257	69	215	55	233	54	244	56	240	54	313	75	182	49	316	90	247	79	233	76	2811	63
NORTH DAKOTA																										
FARGO	164	59	116	41	198	54	184	45	278	60	356	75	366	77	303	85	323	86	172	51	124	44	149	56	2804	63
GRAND FORK	174	64	125	47	185	50	183	45	246	53	317	67	333	73	372	69	298	79	153	45	103	37	111	42	2536	57
WILLISTON	187	68	153	53	211	57	235	57	281	60	369	77	373	77	369	83	322	85	206	61	127	46	147	56	2980	67
OHIO																										
CINCINNATI AFB	50	26	73	24	144	39	207	52	168	34	306	69	170	38	227	54	241	64	124	36	100	33	133	45	1974	44
CLEVELAND	174	35	90	30	126	34																				

# SUNSHINE, AMOUNT AND PERCENT

YEAR 1979

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
SOUTH DAKOTA																										
HUPON	174	61	141	48	198	54	230	57	324	71	329	71	242	62	253	58	113	16	174	51	271	69	190	69	2830	63
SAPID CITY	219	83	208	71	223	60	205	51	216	47	307	66	321	69	284	66	324	56	201	59	147	51	155	56	2832	63
TENNESSEE																										
CHATTANOOGA	176	35	161	31	196	52	223	57	198	46	283	65	145	31	246	59	162	44	237	68	185	60	192	61	2277	51
KNOXVILLE	141	45	146	47	261	70	311	79	337	75	295	68	219	49	303	72	199	54	227	65	164	53	175	54	2767	62
MEMPHIS	155	43	114	37	224	60	254	65	304	70	348	80	306	69	332	80	277	75	269	77	217	70	181	59	2961	67
NASHVILLE	168	52	169	36	168	51	209	53	214	49	259	59	182	41	217	52	237	55	243	69	170	55	145	49	2236	50
TEXAS																										
ABILENE	175	56	164	59	217	58	269	69	283	66	300	70	325	75	331	75	248	80	254	92	227	72	185	55	3063	69
AMARILLO	190	61	240	78	237	64	300	76	267	61	321	74	307	69	315	75	309	83	292	83	286	73	196	64	3202	72
AUSTIN	106	33	117	38	171	46	179	46	185	44	261	62	240	56	281	68	267	72	247	70	204	72	174	54	2455	55
BECKSVILLE	101	30	131	41	184	49	218	57	279	67	326	80	306	77	284	70	256	69	275	77	154	47	114	35	2649	60
BOSS CHRISTI	141	43	130	41	204	60	219	57	288	69	355	85	332	78	344	86	276	75	304	85	258	70	144	44	2988	67
DALLAS FT WORTH	112	35	124	39	191	51	214	55	258	60	298	70	327	75	321	78	296	80	241	75	156	62	192	62	2791	61
EL PASO	197	62	254	81	144	42	372	94	386	89	170	47	343	84	364	89	328	88	245	94	284	90	284	84	3845	87
GALVESTON	114	35	115	37	245	66	158	41	286	68	176	40	284	67	308	75	245	68	324	91	227	71	159	50	2865	63
HOUSTON INTERCON	117	36	88	28	194	52	151	39	242	59	241	67	236	54	258	63	239	65	244	87	201	69	176	55	2508	58
LUBBOCK	146	57	104	68	207	64	294	75	312	72	355	82	357	90	284	68	321	86	298	85	231	74	207	67	3381	76
PORT ARTHUR	127	39	101	32	218	59	169	44	259	61	303	72	255	59	210	51	227	61	242	82	252	79	194	61	2606	59
SAN ANTONIO	94	29	125	40	161	43	177	46	216	51	295	70	256	60	291	71	268	72	261	73	184	57	149	47	2479	56
UTAH																										
MILFORD	116	34	167	55	226	62	282	71	317	72	413	93	398	86	339	80	342	92	266	77	210	69	217	73	3296	74
SALT LAKE CITY	112	28	104	35	226	62	271	64	323	72	394	87	406	89	331	78	345	92	243	71	181	61	171	59	3109	70
VERMONT																										
BARLINGTON	78	27	172	54	157	42	170	42	217	47	245	53	267	57	177	41	201	54	85	25	70	24	87	32	1926	43
VIRGINIA																										
LYNCHBURG	141	52	155	51	272	73	265	67	294	67	282	64	144	55	268	64	160	43	220	63	172	56	205	68	2698	61
NOFOLK	148	48	155	51	267	69	271	56	213	48	245	56	200	45	236	56	210	57	210	57	210	57	210	57	210	57
PIEDMONT	164	53	176	58	268	72	256	65	307	70	325	74	297	68	303	72	217	56	262	75	206	67	184	63	2970	67
WASHINGTON																										
QUILLAYUT	91	33	42	15	173	47	144	35	181	38	176	37	161	33	150	34	153	40	111	31	81	29	22	8	1488	33
SEATTLE-TACOMA	125	45	40	14	224	61	213	52	268	57	349	73	405	84	262	59	140	50	145	43	79	28	41	15	2340	52
SPOKANE	113	41	79	28	250	68	270	66	359	77	390	82	425	88	383	87	335	69	229	68	102	36	33	12	2968	66
WALLA WALLA U	71	11	47	16	230	62	216	53	377	71	364	77	413	87	311	71	303	81	183	54	46	16	49	18	2521	56
WEST INDIES																										
SAN JUAN P.R.	273	67	231	71	211	56	131	35	174	43	222	56	311	77	277	70	227	62	356	84	247	73	254	74	2824	64
WEST VIRGINIA																										
PARKERSBURG	127	41	188	63	264	71	187	47	252	57	267	60	263	58	212	50	273	73	221	64	156	52	124	42	2531	57
WISCONSIN																										
GREEN BAY	146	51	166	64	142	38	178	44	277	60	278	60	324	69	280	64	279	74	131	38	117	41	144	52	2481	56
MADISON	141	48	172	58	130	35	164	41	283	62	284	62	303	65	194	45	274	73	110	32	84	29	165	59	2305	52
MILWAUKEE	152	52	156	54	157	42	175	44	303	67	301	67	310	67	225	52	260	75	142	41	102	35	126	45	2436	54
WYOMING																										
CHEYENNE	101	67	198	66	251	68	309	77	280	62	342	75	307	67	295	69	309	81	214	62	177	60	165	57	3048	68
LARAMIE	130	45	167	57	219	59	216	54	243	54	384	84	380	82	318	74	334	89	227	66	187	64	136	49	2943	66
THORNTON	160	56	149	51	221	60	197	49	240	52	300	64	313	67	224	50	304	81	185	54	155	54	167	61	2614	59

Data from airport unless otherwise specified.  
 "U" indicates Urban, "R" indicates Rural, sites.

**ANNUAL CLIMATOLOGICAL DATA**  
**METRIC UNITS**

[illegible]

See reference notes at end of table.



## YEAR 1979

See reference notes at end of table

## JULY 1970

See reference notes at end of table



# ANNUAL CLIMATOLOGICAL DATA METRIC UNITS

YEAR 1979

State and Station	Temperature				Precipitation				Relative humidity				Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
	Averages		Extremes		Total		Snow		700m EST		700m EST		700m EST		Fastest mile (16 kilometers)		Sunrise to sunset		Thunderstorms		Heavy fog																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Daily maximum	Daily minimum	Annual	Highest	Lowest	Date	Date	Greatest in 24 hours	mm	Greatest in 24 hours	mm	Greatest in 24 hours	mm	Greatest in 24 hours	mm	Direction	Speed m/s	Average speed m/s	Resultant speed m/s	Resultant direction	Direction	Date	Clear, 0-3	Partly cloudy, 0-4	Cloudy, 0-8	Precipitation 25mm or more	Snow 1/25mm or more	Clear, 0-3	Partly cloudy, 0-4	Cloudy, 0-8	Precipitation 25mm or more	Thunderstorms	Heavy fog	Max. temp. 32.2 C and above	Min. temp. 0 C and below	Max. temp. 32.2 C and above	Min. temp. 0 C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
ALABAMA	17.4	6.5	12.1	31.6	-22.8	JUN	FEB	MAR	59	30-31	59	114	27	JAN	APR	6.2	103	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79	80	62	165	79



ANNUAL CLIMATOLOGICAL DATA  
METRIC UNITS

YEAR 1979

State and Station	Temperature				Precipitation				Relative humidity				Wind				Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Averages		Extremes		Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	Snow †		1000 m EST		7000 m EST		7000 m EST		Speed	Direction	Fastest mile (1.6 kilometers)	Date	Average sky cover	Clear, 0-3	Partly cloudy, 0-4-7	Cloudy, 0-8-10	Precipitation 25mm or more	Thunderstorms	Heavy fog	Max temp 32.2 C and above	Min temp -17.8 C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Daily maximum	Daily minimum	Annual	Highest							Lowest	Date	Date	%	%	%	%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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See reference notes at end of table

# ANNUAL CLIMATOLOGICAL DATA METRIC UNITS

YEAR 1979

State and Station	Temperature				Cooling degree days Base 18.3 C	Heating degree days Base 18.3 C	Precipitation			Relative humidity			Wind				Number of days																			
	Averages		Extremes				Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	Speed	Direction	Fastest mile (1.6 kilometers)	Sunrise to sunset	Clear, 0-0.3	Partly cloudy, 0.4-0.7	Cloudy, 0.8-1.0	Precipitation 25mm or more	Snow 1" or more	Thunderstorms	Heavy fog	Max. temp. 32.2 C and above	Min. temp. 0 C and below	-17.8 C and below										
	Daily maximum	Daily minimum	Annual	Highest																							Lowest	Date								
ALABAMA	C	C	C	C	Base 18.3 C	Base 18.3 C	mm	mm	mm	mm	mm	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s	m/s										
MOBILE	14.7	1.4	7.9	34.4	-28.9	FEB 14	FEB 10	4449	576	MAR 21-22	775	53	MAR 21-22	196	N	22.4	JUL 29	5.6	11.8	10.9	13.8	107	15	50	25	32	65	162	36							
NORTH BATTLE	15.2	1.1	8.5	34.9	-30.6	JUN 7	JAN 7	3584	479	JUL 6	674	60	JUL 27	224	N	21.0	MAY 31	5.6	12.0	11.7	12.8	87	10	37	21	36	55	168	35							
MOBILE (REPLACED)	15.7	1.7	8.4	37.8	-27.4	JUN 7	FEB 10	3944	557	OCT 6	754	64	OCT 30	154	N	14.5	DEC 7	5.6	11.9	10.7	13.9	99	12	51	21	19	61	146	32							
MOBILE (MOBILE)	14.2	3.7	8.4	31.7	-27.4	JUN 14	AUG 8	3666	474	JUL 31	473	31	JUL 25-26	139	N	17.9	APR 12	5.6	12.2	10.8	13.5	98	14	47	9	41	42	160	26							
MONTICELLO	14.1	1.7	8.4	34.9	-31.1	JAN 1	JAN 1	4406	472	JUN 4	461	46	JUN 15-16	1095	S	17.7	MAY 18	5.7	11.4	10.4	14.7	88	13			43	57	180	39							
VALMONT	14.7	2.7	7.2	44.6	-13.3	JAN 14	JAN 14	3442	386	JAN 27	1001	145	JAN 21	145	N	14.3	MAY 27	5.3	13.8	9.0	13.7	71	15	13	6	70	18	181	8							
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	5.3	13.4	10.6	12.5	69	13	24	1	26	21	208	22							
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	5.1	13.4	10.6	12.5	69	13	24	1	26	21	208	22							
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	3.8	10.5	9.0	8.0	33	2	12	1	14.5	0	29	0	29	0					
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	3.8	10.5	9.0	8.0	33	2	12	1	14.5	0	29	0	29	0					
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.2	29	51	70	3.9	0.4	27	21.9	5.4	25	4.9	13.9	111	115	5	52	8	178	0
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.1	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132	S	21.6	MAR 1	4.0	32	52	62	3.2	0.3	25	17.0	5.4	5	6.6	13	166	11	11	11			
MOBILE	14.7	1.2	8.4	34.6	-25.6	JAN 8	JAN 8	4158	116	AUG 21	1140	132	AUG 25	132																						

# ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

1979

State and Station	Temperature				Precipitation				Relative humidity		Wind			Number of days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Averages		Extremes		Date	Lowest	Highest	Daily maximum	Daily minimum	Annual	Date	C	F	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm

See reference notes at end of table



## YEAR 1975

See reference notes at end of table

# ANNUAL CLIMATOLOGICAL DATA

## METRIC UNITS

YEAR 1979

State and Station	Temperature				Heating degree days		Cooling degree days		Precipitation				Relative humidity		Wind				Number of days				Max temp		Min temp																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Averages		Extremes		Date	Lowest	Date	Highest	Daily minimum	Daily maximum	Total	Greatest in 24 hours	Date (s)	Total	Greatest in 24 hours	Date (s)	Resultant speed	Direction	Speed	Fastest mile (1/6 kilometers)	Date	Average sky cover	Clear, 0-3	Partly cloudy, 04-07	Cloudy, 08-10	Precipitation 25mm or more	Snow 25mm or more	Thunderstorms	Heavy fog	32.2 C and above	O C and below	32.2 C and below	O C and below																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Annual	Daily	Daily	Daily																														Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily

See reference notes at end of table



# ANNUAL CLIMATOLOGICAL DATA METRIC UNITS

YEAR 1979

State and Station	Temperature						Heating degree days	Cooling degree days	Precipitation				Relative humidity				Wind				Number of days													
	Averages			Extremes					Total	Greatest in 24 hours	Date (s)	Snow † Greatest in 24 hours	Date (s)	% 1000 m EST	% 7000 m EST	% 1000 m EST	% 7000 m EST	Average speed	Resultant speed	Resultant direction	Speed	Direction	Fastest mile (1/6 kilometers)	Average sky cover	Clear, 0-3	Partly cloudy, 0-4-7	Cloudy, 0-8-10	Precipitation 25mm or more	Snow † 25mm or more	Thunderstorms	Heavy fog	Max temp 32.2 C and above	Min. temp. 0 C and below	-17.8 C and below
	Daily maximum	Daily minimum	Annual	Highest	Lowest	Date																												
ALABAMA	18.8	2.6	9.7	40.0	-23.3	FEB 24	3394	317	174	JAN 9-10	JAN 9-10	53	44	65	74	3.1	1.5	28	14.1	29	FEB 5	5.4	114	92	159	66	8	5	35	34	40	140	14	
ALASKA	10.1	21.9	27.1	35.0	19.4	MAR 7	3265	1694	180	25	0	85	82	70	81	3.0	2.9	8	21.5	F	AUG 30	6.2	54	145	126	195	0	59	0	64	0	0	0	
ALBERTA	17.1	4.9	10.2	30.0	-20.0	FEB 10	3135	224	1156	55	21-22	80	87	67	73	4.0	1.1	23	16.1	14	NOV 1	7.7	50	78	237	166	24	33	67	0	38	114	6	
ALBERTA	17.9	4.5	10.2	30.8	-17.2	FEB 11	2867	497	1241	50	20-21	79	82	59	64	3.0	1.0	25	17.6	25	JAN 14	7.0	67	94	204	183	17	46	98	5	28	95	0	
ALBERTA	17.4	4.1	9.7	31.1	-27.8	FEB 10	3330	216	1374	52	JUN 18	68	65	74							DEC 12	7.8	40	82	243	291	27		0	36	139	11		
ALBERTA	17.2	7.0	12.4	33.9	-17.2	FEB 10	2641	558	1368	87	20-21	74	77	59	61	2.9	0.7	24	12.5	30	DEC 12	7.5	52	92	221	165	10	39	78	6	33	98	0	
ALBERTA	15.5	6.2	11.4	33.3	-17.8	FEB 17	2929	467	1042	45	12	1092	188	18-19								7.5				155	14		7	46	105	3		
ALBERTA	10.1	4.6	9.7	30.2	-31.7	JAN 10	4748	211	767	47	26-27	81	84	67	70	4.4	0.8	28	18.3	14	APR 2	6.7	77	94	194	126	17	30	26	1	79	161	33	
ALBERTA	12.4	1.7	7.1	32.8	-32.2	FEB 10	4365	324	865			82	85	65	67	1.7	0.5	28							109	17	39	17	6	75	147	37		
ALBERTA	12.0	4	6.5	32.8	-33.3	JAN 10	4487	260	714	43	22-23	86	88	65	69	4.7	0.8	26	19.7	NA	APR 2	6.8	77	104	169	172	14	37	34	1	73	160	34	
ALBERTA	11.9	2.1	7.6	34.4	-26.7	JAN 15	4169	299	784	52	25-26	79	81	66	70	4.9	1.3	26	23.2	NA	DEC 24	6.6	60	101	164	171	11	37	36	4	70	132	21	
ALBERTA	14.1	-1.0	6.6	36.9	-33.9	JAN 10	4450	271	319	44	18-19	44	43	63	70	5.5	2.6	24	22.6	22	DEC 24	6.2	91	118	156	102	25	30	4	32	41	191	32	
ALBERTA	14.4	4	7.6	35.6	-27.2	JAN 10	3986	196	437	42	20-21	38	41	56	57	5.1	2.4	29	24.0	4	DEC 24	5.8	101	149	135	120	24	61	23	12	41	169	16	
ALBERTA	17.4	-1.4	6.1	38.3	-35.0	JAN 10	4446	242	402	44	1-2	3137	513	10-11	50	45	59	66	23	27.3	54	5.5	112	119	134	64	24	27	4	20	64	193	37	
ALBERTA	17.4	-2.0	5.4	37.8	-34.4	JAN 10	4629	177	311	23	28-29	1826	277	8-9	52	50	72	76	30	21.0	NA	6.0	92	121	161	96	25	36	7	23	58	165	45	

Data from airport unless otherwise specified. U indicates Urban, R indicates Rural, sites.

Precipitation data in column headed "Greatest in 24 hours" are computed on a 24-hour basis without regard to calendar day - data may include precipitation with a measurable amount from the last day of the previous month or the first day of the following month.

Wind directions under resultant direction are in tens of degrees.

Value entered in column "Fastest Mile" is the highest observed 1-minute wind speed when the direction is in tens of degrees. These stations are not equipped with a recording anemometer from which "Fastest Mile" data can be evaluated.

Data in this table are obtained by conversion from data in the English Units table.

\* Includes all forms of frozen precipitation, except hail occurring alone.

+ And also on an earlier date or dates.

R Number of days maximum 21.1% or above for Alaskan Stations.

V Peak gust

V Sun below horizon November 19 - January 23, inclusive

X Sun below horizon November 24 - January 17, inclusive.



# NORMALS, MEANS AND EXTREMES

YEAR 1979

State and Station	Elevation Ground (Meters)	Temperature (°C)				Normal Heating Degree Days (1941-1970)				Precipitation (Millimeters)				Snow @				Relative Humidity (Percent)				Wind Speed (m.p.s.)				Sunshine (% of Possible)				Annual Mean Number of Days							
		Normal (1941-1970)				Extremes				Normal (1941-1970)				Extremes				Ex- treme				Mean Speed				January				Sunrise to Sunset							
		January				Record				January				January				January				January				January				January				January			
		Daily				Lowest				Daily				Daily				Daily				Daily				Daily				Daily				Daily			
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min				
ALABAMA																																					
BIRMINGHAM U	207	12.7	2.8	32.8	21.8	1.7	26.7	32.8	17.8	33.4	13.9	16.2	65	37	190	1	1	213	30.6	56.8	66.2	3.8	2.5	2.9	1.4	59	11	55	11	55	11	55	11				
BIRMINGHAM X	189	12.4	1.2	32.4	20.8	16.9	36	32	17.2	36.3	15.7	66	1352	449	179	13	28	93	58.7	70.8	86.1	4.2	2.8	2.6	1.2	58	23	43	67	58	23	43	67				
BIRMINGHAM Y	160	10.3	-0.4	32.3	20.4	16.0	12	38.3	18.3	35	18.3	17	65	1325	375	15	196	71	91	82.6	86.1	4.7	2.8	2.6	1.2	58	23	43	67	58	23	43	67				
BIRMINGHAM Z	64	16.2	5.2	32.3	20.4	16.0	12	38.3	18.3	35	18.3	17	65	1325	375	15	196	71	91	82.6	86.1	4.7	2.8	2.6	1.2	58	23	43	67	58	23	43	67				
BIRMINGHAM AA	64	16.2	5.2	32.3	20.4	16.0	12	38.3	18.3	35	18.3	17	65	1325	375	15	196	71	91	82.6	86.1	4.7	2.8	2.6	1.2	58	23	43	67	58	23	43	67				
BIRMINGHAM AB	59	14.4	2.8	32.5	21.9	16.2	35	40.6	15.0	30.9	12.6	153	57	1266	542	1	224	8	10	79.8	86.1	4.7	2.8	2.6	1.2	58	23	43	67	58	23	43	67				
ALASKA																																					
ANCHORAGE	35	-6.7	-15.8	18.7	10.1	1.7	26.7	32.8	17.8	91.6	60.6	60	14	374	138	1	52	267	17.9	45.0	71.2	2.6	3.2	2.7	1.4	26	15	18	37	26	15	18	37				
ANCHORAGE X	34	3.3	-1.7	17.8	10.9	7.6	32	32.2	17.2	54.3	12.8	453	128	2903	886	1	193	366	14.7	36.1	77.4	5.4	3.6	2.6	1.4	15	22	61	0	15	22	61	0				
ANCHORAGE Y	9	-22.2	-29.6	6.8	0.6	-12.6	59	25.6	48.9	137.3	126.0	26	4	124	71	0	25	56	71.6	96.8	99.4	5.1	5.2	4.2	2.9	59	52	18	76	59	52	18	76				
ANCHORAGE Z	12	-22.5	-29.9	7.5	1.4	-12.2	30	25.6	50.6	370.0	110.7	33	6	179	125	1	51	170	111.5	42.6	70.6	6.6	4.7	3.6	2.2	52	21	19	91	52	21	19	91				
ANCHORAGE AA	38	-10.9	-19.9	16.6	8.6	-8.8	21	30.0	43.3	103.2	73.9	101	11	402	148	1	51	170	111.5	42.6	70.6	6.6	4.7	3.6	2.2	52	21	19	91	52	21	19	91				
ANCHORAGE AB	196	-20.7	-29.5	20.1	8.6	-5.9	29	33.3	56.7	134.7	88.6	70	16	360	150	0	49	267	106.6	55.7	86.8	6.3	5.0	2.7	1.9	86	60	24	77	86	60	24	77				
ANCHORAGE AC	386	-16.4	-24.6	20.4	10.0	-3.5	38	33.3	52.6	120.4	76.0	63	7	291	157	1	54	165	105.9	25.7	69.7	4.8	2.7	2.3	1.1	60	91	16	106	60	91	16	106				
ANCHORAGE AD	29	0.3	-4.6	12.4	7.6	-3.5	38	33.3	52.6	120.4	76.0	63	7	291	157	1	54	165	105.9	25.7	69.7	4.8	2.7	2.3	1.1	60	91	16	106	60	91	16	106				
ANCHORAGE AE	133	-19.0	-29.8	22.1	7.6	-3.5	38	33.3	52.6	120.4	76.0	63	7	291	157	1	54	165	105.9	25.7	69.7	4.8	2.7	2.3	1.1	60	91	16	106	60	91	16	106				
ANCHORAGE AF	476	-16.7	-26.9	20.1	7.6	-3.5	38	33.3	52.6	120.4	76.0	63	7	291	157	1	54	165	105.9	25.7	69.7	4.8	2.7	2.3	1.1	60	91	16	106	60	91	16	106				
ANCHORAGE AG	19	-2.2	-9.6	15.6	6.7	-2.9	32	32.8	17.8	124.5	77.9	56	8	285	157	1	87	271	171.2	51.6	86.8	6.3	5.0	2.7	1.9	86	60	24	77	86	60	24	77				
ANCHORAGE AH	4	-1.6	-7.9	17.6	8.7	4.6	36	32.2	30.0	75.1	50.3	199	74	1389	387	7	118	635	26.9	78.7	97.6	3.5	3.0	1.9	1.2	68	88	09	18	51	28	12	10				
ANCHORAGE AI	15	-6.1	-14.6	16.9	8.0	0.7	37	31.1	43.3	88.9	64.3	88	23	502	185	0	51	178	113.8	24.7	37.3	4.7	4.3	1.7	1.1	51	70	24	150	51	70	24	150				
ANCHORAGE AJ	4	1.4	-3.2	15.9	9.5	4.8	31	30.0	24.4	59.6	49.2	160	90	1400	401	5	113	47	22.0	45.2	79.7	3.5	3.2	1.6	1.1	62	74	29	90	62	74	29	90				
ANCHORAGE AK	3	-16.0	-23.7	14.8	8.3	-6.2	37	29.4	46.7	117.3	89.10	57	7	223	139	0	45	165	117.1	25.7	70.7	6.6	5.8	1.4	1.6	94	71	27	106	94	71	27	106				
ANCHORAGE AL	105	-17.5	-27.9	19.8	9.3	-3.8	37	32.2	55.0	127.3	80.48	83	17	425	159	0	45	165	117.1	25.7	70.7	6.6	5.8	1.4	1.6	94	71	27	106	94	71	27	106				
ANCHORAGE AM	4	-10.3	-18.7	13.2	6.9	-3.6	33	30.0	43.3	101.6	79.58	91	18	418	199	1	76	274	140.0	22.9	27.2	2.8	2.6	1.3	1.5	68	70	27	106	68	70	27	106				
ANCHORAGE AN	7	-11.1	-18.6	9.7	5.6	1.4	62	17.8	32.2	67.0	61.77	87	28	623	237	2	49	315	147.8	35.8	66.5	9.3	5.8	3.6	1.7	57	101	0	6	57	101	0	6				
ANCHORAGE AO	37	1.3	-1.7	9.3	6.3	3.5	27	17.2	13.9	57.5	54.08	84	38	716	221	4	134	240	140.8	35.8	66.5	9.3	5.8	3.6	1.7	57	101	0	6	57	101	0	6				
ANCHORAGE AP	73	13.4	-20.4	15.7	6.6	-3.6	35	31.1	43.3	88.9	64.3	88	23	502	185	0	51	178	113.8	24.7	37.3	4.7	4.3	1.7	1.1	51	70	24	150	51	70	24	150				
ANCHORAGE AQ	105	-7.2	-18.0	19.7	9.0	0.4	40	32.8	44.4	95.8	65.04	124	28	727	303	1	79	150	272.3	91.6	82.8	6.3	5.2	1.7	1.0	81	74	27	106	81	74	27	106				
ANCHORAGE AR	105	-7.2	-18.0	19.7	9.0	0.4	40	32.8	44.4	95.8	65.04	124	28	727	303	1	79	150	272.3	91.6	82.8	6.3	5.2	1.7	1.0	81	74	27	106	81	74	27	106				
ANCHORAGE AS	11	-3.9	-11.9	16.2	7.5	1.2	8	29.4	28.9	81.3	56.58	197	69	1360	523	1	70	135	72.19	71.8	84.1	6.3	5.2	1.7	1.0	81	74	27	106	81	74	27	106				
ANCHORAGE AT	9	-0.4	-8.3	15.2	8.6	3.8	33	30.0	31.1	70.3	52.96	496	144	3364	1115	13	198	1369	564.1	82.3	82.1	6.3	5.2	1.7	1.0	81	74	27	106	81	74	27	106				
ARIZONA																																					
LAGUASTAFF	2135	5.2	-9.8	27.1	10.2	7.4	30	36.1	30.6	63.9	40.67	67	14	490	250	0	290	475	233.9	69.3	74.5	3.4	2.8	2.0	1.6	71	100	72	50	71	100	72	50				
LAGUASTAFF X	338	18.2	3.1	40.4	25.3	21.3	42	47.8	-8.3	23.8	8.62	31	3	179	141	0	78	1	156	74.3	74.3	2.3	3.3	2.6	1.7	52	23	35	23	52	23	35	23				
LAGUASTAFF Y	788	17.5	3.4	36.8	23.4	19.9	39	43.9	-8.9	24.6	9.73	60	4	281	201	0	100	8	173	64.0	74.3	3.4	3.3	2.6	1.7	52	23	35	23	52	23	35	23				
LAGUASTAFF Z	1492	7.6	-6.9	34.2	17.2	12.9	48	48.2	-27.6	55.8	26.29	38	7	186	142	0	56	66	284	437	74.3	3.2	4.1	2.8	1.7	19	97	89	53	4	37	94	41				
LAGUASTAFF AA	59	19.7	6.3	41.1	27.4	23.2	29	48.3	-4.4	171	55.8	11	0	68	75	0	69	1	157	74.3	3.2	3.3	4.2	2.6	1.6	0	7	216	2	0	7	216	2	0			
ARKANSAS																																					
FORT SMITH	116	9.9	-2.2	34.3	21.4	16.3	34	43.9	23.3	44.8	18.53	139	60	1074	356	1	181	66	165	198	60.6	3.7	2.8	2.5	1.6	57	15	67	82	57	15	67	82				
FORT SMITH X	78	1																																			

# NORMALS, MEANS AND EXTREMES

YEAR 1979

State and Station	Elevation Ground (Meters)	Temperature (°C)				Normal Heating Degree Days (1941-1970)				Extremes				Normal Days Heating (1941-1970)				Normal (1941-1970)				Extremes				Precipitation (Millimeters)				Snow @				Relative Humidity (Percent)				Wind Speed (m.p.s.)		Sunshine (% of Possible)				Sunrise to Sunset				Annual Mean Number of Days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
		January		July		Minimum		Maximum		Record		Lowest		January		Seasonal		West		East		West		East		January		Maximum		In 24 Hours		Ex- treme		Mean Total		January		July		7 00 p.m. EST		7 00 p.m. EST		7 00 p.m. EST		7 00 p.m. EST		January		July		Fastest Mile		Sunrise to Sunset		Thunderstorms		Temperature																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	



# NORMALS, MEANS AND EXTREMES

YEAR 1975

State and Station	Elevation (Meters)	Temperature (°C)				Normal Heating (1941-1970)				Normal Days (1941-1970)				Precipitation (Millimeters)				Relative Humidity (Percent)				Wind Speed (m.p.s.)				Annual Mean Number of Days				
		Normal (1941-1970)				Extremes				Degree Days (1941-1970)				Normal (1941-1970)				Snow @				Sunshine (% of Possible)				Sunrise to Sunset				
		January				Record				January				Wettest				Mean Total				January				Clear				
		Maximum				Highest				Record				Month				Maximum				July				Partly Cloudy				
		Minimum				Lowest				Record				Wettest				Ex- treme				July				Snow, Sleet, Hail				
		Max	Min	VI	°C	Max	Min	VI	°C	Max	Min	VI	°C	Max	Min	VI	°C	Max	Min	VI	°C	Max	Min	VI	°C	Max	Min	VI	°C	
ILLINOIS																														
CHICAGO	178	6.5	-1.8	32.1	15.2	37.4	20.6	32.1	15.2	64	212	105	33	1197	360	291	1	94	262	34	80	67	18	4	2.92	2.4	574	114	3	53
CHICAGO MIDWAY	231	-0.5	-9.6	28.4	15.9	37.4	20.6	32.1	15.2	725	360	105	33	806	291	1	117	297	1008	46	67	18	4	2.92	2.4	574	114	3	53	
CHICAGO MIDWAY	165	-0.3	-8.3	29.1	18.3	37.4	20.6	32.1	15.2	701	340	104	40	875	360	291	1	158	297	1008	46	67	18	4	2.92	2.4	574	114	3	53
CHICAGO MIDWAY	177	-1.1	-10.6	29.6	17.7	37.4	20.6	32.1	15.2	749	355	116	33	909	360	291	1	206	785	51	72	68	4	3.02	2.4	574	114	3	53	
CHICAGO MIDWAY	199	-0.1	-9.1	29.7	18.1	37.4	20.6	32.1	15.2	779	367	111	38	891	332	1	159	168	694	27	78	67	18	4	2.92	2.4	574	114	3	53
CHICAGO MIDWAY	221	-1.7	-11.4	29.7	16.3	37.4	20.6	32.1	15.2	772	367	112	33	933	300	1	151	218	694	27	78	67	18	4	2.92	2.4	574	114	3	53
CHICAGO MIDWAY	178	1.6	-7.4	30.3	18.7	37.4	20.6	32.1	15.2	659	308	106	44	890	252	1	130	155	607	27	78	67	18	4	2.92	2.4	574	114	3	53
INDIANA																														
EVANSVILLE	116	5.3	-4.6	31.6	19.3	37.4	20.6	32.1	15.2	558	256	119	64	1064	343	1	154	112	358	26	77	67	18	4	2.92	2.4	574	114	3	53
EVANSVILLE	241	2.2	-6.8	29.7	18.1	37.4	20.6	32.1	15.2	684	349	99	52	909	247	4	117	161	635	34	57	67	18	4	2.92	2.4	574	114	3	53
EVANSVILLE	241	2.2	-6.8	29.7	18.1	37.4	20.6	32.1	15.2	639	308	106	60	984	322	4	120	155	565	41	67	67	18	4	2.92	2.4	574	114	3	53
EVANSVILLE	236	-0.3	-8.6	28.2	16.5	37.4	20.6	32.1	15.2	706	359	102	49	919	248	1	119	493	1798	40	57	67	18	4	2.92	2.4	574	114	3	53
IOWA																														
DES MOINES	211	-0.2	-9.9	30.1	18.1	37.4	20.6	32.1	15.2	725	341	120	32	880	384	1	160	185	660	33	57	67	18	4	2.92	2.4	574	114	3	53
DES MOINES	286	-2.1	-11.5	29.4	18.5	37.4	20.6	32.1	15.2	785	372	124	27	784	360	1	157	216	653	50	57	67	18	4	2.92	2.4	574	114	3	53
DES MOINES	722	-3.3	-12.6	27.8	16.3	37.4	20.6	32.1	15.2	814	404	134	32	1023	393	1	160	231	1102	39	57	67	18	4	2.92	2.4	574	114	3	53
DES MOINES	734	-2.1	-13.5	30.4	17.7	37.4	20.6	32.1	15.2	809	362	127	17	654	262	1	140	160	772	29	57	67	18	4	2.92	2.4	574	114	3	53
DES MOINES	265	-3.5	-13.9	28.7	16.4	37.4	20.6	32.1	15.2	839	419	127	23	857	320	1	236	173	800	37	57	67	18	4	2.92	2.4	574	114	3	53
KANSAS																														
CANONVILLE	449	2.7	-0.9	32.1	18.9	37.4	20.6	32.1	15.2	665	324	127	17	701	359	1	135	137	566	33	57	67	18	4	2.92	2.4	574	114	3	53
CANONVILLE	787	5.9	-7.2	33.0	19.4	37.4	20.6	32.1	15.2	589	280	85	13	523	232	1	141	107	470	32	57	67	18	4	2.92	2.4	574	114	3	53
CANONVILLE	1114	5.3	-10.2	32.5	16.1	37.4	20.6	32.1	15.2	644	399	74	9	423	205	0	98	145	589	36	57	67	18	4	2.92	2.4	574	114	3	53
CANONVILLE	267	3.5	-7.9	31.6	12.4	37.4	20.6	32.1	15.2	637	367	147	25	880	386	1	140	155	546	36	57	67	18	4	2.92	2.4	574	114	3	53
CANONVILLE	403	5.2	-6.0	33.2	20.6	37.4	20.6	32.1	15.2	580	260	114	22	777	266	1	126	119	404	34	57	67	18	4	2.92	2.4	574	114	3	53
KENTUCKY																														
COVINGTON	265	4.3	-5.3	30.3	18.1	37.4	20.6	32.1	15.2	584	281	105	55	992	309	0	264	320	566	33	57	67	18	4	2.92	2.4	574	114	3	53
COVINGTON	294	5.2	-4.2	30.2	18.8	37.4	20.6	32.1	15.2	553	267	123	54	1130	423	6	149	157	427	24	57	67	18	4	2.92	2.4	574	114	3	53
COVINGTON	145	5.6	-4.2	30.7	19.1	37.4	20.6	32.1	15.2	546	259	128	60	1095	379	9	177	157	497	35	57	67	18	4	2.92	2.4	574	114	3	53
LOUISIANA																														
ALEXANDRIA	28	4.8	2.6	33.0	21.3	37.4	20.6	32.1	15.2	304	1222	142	83	1373	332	0	559	137	566	33	57	67	18	4	2.92	2.4	574	114	3	53
ALEXANDRIA	200	6.4	4.7	32.9	22.6	37.4	20.6	32.1	15.2	251	929	165	67	1373	369	1	307	137	566	33	57	67	18	4	2.92	2.4	574	114	3	53
ALEXANDRIA	3	16.4	6.1	32.9	23.1	37.4	20.6	32.1	15.2	231	832	166	88	1409	507	1	307	137	566	33	57	67	18	4	2.92	2.4	574	114	3	53
ALEXANDRIA	1	16.8	6.4	32.4	22.9	37.4	20.6	32.1	15.2	224	814	171	57	1442	485	0	250	137	566	33	57	67	18	4	2.92	2.4	574	114	3	53
ALEXANDRIA	77	13.7	3.2	34.2	22.7	37.4	20.6	32.1	15.2	307	1204	132	68	1136	315	0	182	23	41	13	57	67	18	4	2.92	2.4	574	114	3	53
MAINE																														
CARIBOU	190	-6.8	-16.9	24.2	12.3	37.4	20.6	32.1	15.2	935	535	101	52	910	215	0	204	602	2663	46	27	67	18	4	2.92	2.4	574	114	3	53
CARIBOU	13	-0.4	-11.3	26.2	13.8	37.4	20.6	32.1	15.2	749	416	123	66	1036	312	7	196	496	1892	86	27	67	18	4	2.92	2.4	574	114	3	53
MARYLAND																														
BALTIMORE INTL AP	45	5.5	-3.9	30.4	19.2	37.4	20.6	32.1	15.2	544	2627	107	71	1028	466	7	199	135	569	50	57	67	18	4	2.92	2.4	574	114	3	53
MASSACHUSETTS																														
BLUE HILL OBS R	192	0.9	-7.4	26.9	16.5	37.4	20.6	32.1	15.2	668	3519	129	75	1189	477	2	461	396	1537	71	67	67	18	4	2.92	2.4	574	114	3	53
BLUE HILL OBS R	5	2.2	-5.3	27.4	18.4	37.4	20.6	32.1	15.2	617	3122	115	70	1080	434	9	213	323	1082	59	67	67	18	4	2.92	2.4	574	114	3	53
BLUE HILL OBS R	301	-0.6	-8.8	26.3	16.0	37.4	20.6	32.1	15.2	713	3804	118	81	1149	334	17	122	434	1867	61	67	67	18	4	2.92	2.4	574	114	3	53
MICHIGAN																														
ALPENA	210	-2.8	-12.9	26.1	11.1	37.4	20.6	32.1	15.2	813	4732	83	34	701	213	4	248	561	2179	41	67	67	18	4	2					



# NORMALS, MEANS AND EXTREMES

YFAB 1979

State and Station	Temperature (°C)										Precipitation (Millimeters)						Relative Humidity (Percent)						Wind Speed (m.p.s.)				Annual Mean Number of Days										
	Normal (1941-1970)					Extremes					Normal Heating (1941-1970)			Normal (1941-1970)			Extremes			Snow @			Relative Humidity (Percent)			Wind Speed		Sunrise to Sunset		Temperature							
	January					Record					Degree Days (1941-1970)			Annual (1941-1970)			Month			Mean Total			Ex- treme			January			Mean Speed		Sunrise to Sunset		Max Min				
	Maximum	Minimum	Daily	Minimum	Annual	Length (Yrs)	Highest	Record	Lowest	January	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer					
	Elevation Ground (Meters)	239	-0.9	-8.9	28.5	15.3	8.8	16	37.8	-29.4	720	3778	87	38	823	209	83	594	1056	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
WICHITA	239	-3.4	-15.8	26.0	12.0	5.9	15	35.6	-36.7	823	4637	88	30	722	182	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
CAND MAPLES	239	-1.2	-9.3	28.1	15.1	8.6	21	37.8	-31.7	735	3835	88	41	772	249	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
HOUGHMAN LAKE	239	-4.0	-11.1	28.1	14.1	8.5	42	40.0	-29.4	603	4639	88	39	783	259	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
LANSING	239	-1.1	-7.9	26.9	15.3	8.5	42	37.2	-26.1	706	3827	85	45	801	251	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
MAQUETTE U	191	-1.1	-7.9	26.9	15.3	8.5	42	37.2	-26.1	706	3827	85	45	801	251	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
MUSKOGEE	191	-1.1	-7.9	26.9	15.3	8.5	42	37.2	-26.1	706	3827	85	45	801	251	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
SAULT STE MARIE	720	-5.4	-14.2	23.9	11.4	4.4	39	36.7	-37.2	875	5107	98	38	805	241	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
MINNESOTA	720	-5.4	-14.2	23.9	11.4	4.4	39	36.7	-37.2	875	5107	98	38	805	241	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
COLUMBIA	434	-6.0	-18.1	24.7	12.6	3.7	38	36.1	-39.4	973	5413	113	27	767	262	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
WOLF	434	-6.0	-18.1	24.7	12.6	3.7	38	36.1	-39.4	973	5413	113	27	767	262	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
INTERNATIONAL FALLS	234	-10.2	-22.8	25.0	11.9	2.5	40	36.7	-37.3	1087	5859	101	18	652	286	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
MINNEAPOLIS	234	-6.0	-18.1	24.7	12.6	3.7	38	36.1	-39.4	973	5413	113	27	767	262	110	69	511	1308	490	1737	7025	546	5.2	3.8	5.9	53	265	67	952	3145	25	36	27	111	8	10
QUINCY	398	-5.4	-15.6	27.1	15.3	6.4	20	38.9	-25.6	897	4570	118	17	698	313	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4926	118	19	682	237	117	221	1113	368	766	719	755	5.3	3.7	5.1	53	265	67	952	3145	25	36	27	111	8	10	
ST CLOUD	313	-7.1	-19.6	27.7	14.8	5.4	20	39.4	-41.7	966	4																										

# NORMALS, MEANS AND EXTREMES

YEAR 1979

State and Station	Elevation Ground (Meters)	Temperature (°C)				Normal Heating (1941-1970)				Precipitation (Millimeters)				Snow @				Relative Humidity (Percent)				Wind Speed (m.p.s.)				Sunshine (% of Possible)				Annual Mean Number of Days					
		Normal (1941-1970)		Extremes		Degree Days (1941-1970)		Normal (1941-1970)		Extremes		Mean Total		Ex-Extreme		January		January		January		January		Sunrise to Sunset		Clear		Partly Cloudy		Thunderstorms		Temperature			
		January	July	Record	Lowest	Record	Lowest	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Max	Min			
		Maximum	Minimum	Record	Lowest	Record	Lowest	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month			
		January	July	Record	Lowest	Record	Lowest	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month			
		January	July	Record	Lowest	Record	Lowest	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month			
NEW JERSEY																																			
TRENTON U	17	3.8	-3.7	29.4	19.3	12.2	47	41.1	-25.6	567	2748	120	64	1020	358	1	192	155	599	4.22															
NEW MEXICO																																			
ALBUQUERQUE	1619	8.3	-4.7	33.4	18.4	13.6	40	40.6	-27.2	513	2384	35	7	197	85	0	287	61	269	316	950	1357	3.6	4.1	4.0	27.7	73.0	83	59	4.2	5	631.22	1		
CLAYTON	1519	8.6	-7.4	30.7	15.5	11.5	35	40.0	-29.4	549	2897	70	7	404	197	0	119	86	503	323	644	774	2.2	3.6	4.1	27.7	73.0	83	59	4.0	9	10771.9	1		
POSWELL	1110	12.8	-6.3	35.2	16.5	14.7	12	43.3	-22.2	467	2107	46	9	295	143	0	108	69	282	369	7	437	3.0	3.6	4.1	27.7	73.0	83	59	4.0	9	10771.9	1		
ROSWELL	1112	13.0	-6.2	35.8	17.6	15.1	7	41.7	-22.8	463	2054	43	7	269	165	0	100	66	274	137	15	271	3.5	3.8	4.2	71.1	115	79	51	3	3	16	85	2	
NEW YORK																																			
ALBANY	64	-0.9	-10.8	28.8	15.6	8.7	33	37.8	-33.3	749	3826	83	54	847	228	0	284	115	459	556	796	37	305	4.4	3.3	3.1	74.5	71.1	113	35	16	27	23	8153	16
RINGHAMTON	489	-1.8	-9.3	25.8	15.3	7.8	28	35.6	-28.9	740	4047	97	57	949	245	7	99	511	2202	584	0	72	3.6	5.3	3.8	74.5	71.1	113	35	16	27	23	8153	16	
BUFFALO	215	-1.2	-8.0	26.4	15.9	8.4	36	37.2	-28.9	711	3844	95	57	917	271	3	125	62	2380	61	80	72	3.6	5.3	3.8	74.5	71.1	113	35	16	27	23	8153	16	
NEW YORK CENTRAL P.A.	43	3.6	-3.4	29.6	20.0	12.5	11	41.1	-26.1	565	2693	102	69	1021	428	1	284	196	742	67	16	061	3.7	4.8	3.4	74.5	71.1	113	35	16	27	23	8153	16	
NEW YORK KENNEL	43	3.3	-4.0	28.4	19.4	11.7	19	40.0	-18.9	579	2880	109	68	1055	442	1	167	188	635	503	7	160	6.1	4.8	3.4	74.5	71.1	113	35	16	27	23	8153	16	
NEW YORK LA GUARDIA	33	3.2	-3.1	28.9	20.7	12.4	18	41.7	-18.9	567	2727	114	73	1057	408	1	181	170	681	57	96	55	7.5	4.6	3.4	74.5	71.1	113	35	16	27	23	8153	16	
ROCHESTER	167	-0.4	-8.5	27.9	15.7	8.8	39	37.6	-28.3	704	3732	75	57	796	246	6	98	542	2263	57	96	67	3.6	5.3	3.8	74.5	71.1	113	35	16	27	23	8153	16	
SYRACUSE	115	-0.3	-9.0	27.8	16.1	8.9	30	36.7	-32.2	713	3710	89	68	925	312	5	108	779	2830	62	27	68	4.2	3.7	3.8	74.5	71.1	113	35	16	27	23	8153	16	
NORTH CAROLINA																																			
ASHVILLE	652	9.1	-2.6	29.1	17.0	13.2	15	35.6	-21.7	467	2354	124	75	1148	287	0	564	130	172	41	96	61	7.0	4.6	2.6	74.5	71.1	113	35	16	27	23	8153	16	
CAPT HAITEAS R	22	11.3	3.4	28.8	22.3	16.5	22	35.0	-11.1	339	1517	171	78	1413	372	10	206	8	43	17	80	708	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
CHARLOTTE	229	11.2	0.1	31.3	20.4	15.8	40	40.0	-19.4	494	1788	116	68	1085	317	1	136	51	140	30	37	65	6.1	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
GREENSHORE	213	9.3	-1.9	30.8	19.4	14.5	41	38.9	-21.7	453	2125	112	67	1051	337	3	190	79	226	38	17	65	6.1	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
RALLIGH	132	10.6	-1.1	30.9	19.6	15.1	35	40.6	-18.3	422	1952	129	71	1081	359	6	132	64	185	26	47	95	3.8	3.8	3.8	74.5	71.1	113	35	16	27	23	8153	16	
WILMINGTON	137	13.7	2.3	31.6	22.2	17.6	28	40.0	-12.2	326	1352	212	75	1361	394	4	209	8	41	29	78	15	7.7	4.2	3.6	74.5	71.1	113	35	16	27	23	8153	16	
NORTH DAKOTA																																			
BISMARCK	502	-7.2	-19.3	29.1	18.1	5.2	40	42.8	-42.2	978	5024	91	11	490	211	0	206	178	1003	39	72	66	4.5	4.5	4.2	74.5	71.1	113	35	16	27	23	8153	16	
FARGO	213	-9.2	-19.8	28.2	18.8	4.9	27	41.1	-37.2	1018	5150	61	11	490	211	0	206	178	1003	39	72	66	4.5	4.5	4.2	74.5	71.1	113	35	16	27	23	8153	16	
WILLISTON	539	-7.1	-19.3	28.9	13.4	4.9	18	41.7	-40.6	977	5089	83	12	364	187	1	128	168	945	25	77	87	4.8	4.8	4.2	74.5	71.1	113	35	16	27	23	8153	16	
OHIO																																			
AKRON	369	1.1	-7.4	28.1	16.0	9.8	11	37.8	-29.4	667	3457	98	55	892	290	0	267	295	1222	45	57	86	5.2	5.2	3.4	74.5	71.1	113	35	16	27	23	8153	16	
CINCINNATI ARBE OBS.	232	4.3	-4.3	30.3	18.8	12.7	64	42.8	-27.2	567	2691	105	56	1017	347	3	121	130	480	38	17	77	5.2	5.2	3.4	74.5	71.1	113	35	16	27	23	8153	16	
CLEVELAND	217	0.8	-6.5	27.6	16.2	9.8	38	39.4	-28.3	656	3419	89	55	889	241	9	102	297	1321	27	68	69	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
COLUMBUS	247	2.4	-6.4	29.3	16.9	10.8	40	38.9	-28.3	630	3167	107	48	940	248	3	123	221	726	31	70	72	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
DAYTON	303	2.1	-6.4	29.3	18.0	11.1	36	38.9	-29.4	635	3134	99	49	873	277	3	109	211	734	31	07	68	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
MANSFIELD	395	1.8	-6.3	28.7	17.4	10.7	20	36.1	-28.9	637	3232	99	50	855	205	7	129	352	106	31	28	17	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
TOLEDO	204	0.2	-8.2	28.8	16.0	9.6	24	38.3	-27.2	692	3545	86	44	800	215	7	112	249	973	35	37	96	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
YOUNGSTOWN	359	0.6	-7.6	27.7	15.3	9.3	36	37.8	-27.8	677	3570	99	61	965	251	7	109	340	1448	52	68	17	5.6	5.6	4.6	74.5	71.1	113	35	16	27	23	8153	16	
OKLAHOMA																																			
OKLAHOMA CITY	325	8.7	-3.3	31.7	21.3	15.5	26	42.2	-20.0	486	2053	132	28	797	274	0	398	76	236	21	37	96	5.9	5.9	5.0	74.5	71.1	113	35	16	27	23	8153	16	



# NORMALS, MEANS AND EXTREMES

YEAR 1979

State and Station	Elevation Ground (Meters)	Temperature (°C)					Normal Heating (1941-1970)		Precipitation (Millimeters)					Relative Humidity (Percent)			Wind Speed (m.p.s.)			Sunshine (% of Possible)		Annual Mean Number of Days										
		Normal (1941-1970)					Extremes		Normal (1941-1970)		Extremes			Snow @		Mean Speed		Sunrise to Sunset		Temperature												
		January					July		Annual		Month			January		January		Clear		Precipitation		Max										
		Maximum	Minimum	Daily	Maximum	Minimum	Record Highest	Record Lowest	Days	Westest	Month	Annual	Westest	Month	Maximum	In 24 Hours	Ex-treme	January	July	January	July	Fastest Mile	(1.5 Kilometers)	January	July	Clear	Partly Cloudy	Snow, Sleet or Hail	Thunderstorms	VI	VI	
PACIFIC AREA																																
GUAM TIAO R	112	28.4	21.9	30.1	22.6	25.6	23	35.0	12.2	0	366	75	2303	1019	13	688	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUAM TIAO R	112	27.1	22.7	29.2	25.0	26.1	24	31.7	16.7	0	88	26	713	401	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# NORMALS, MEANS AND EXTREMES

YEAR 1979

State and Station	Elevation Ground (Meters)	Temperature (°C)				Normal Heating Days (1941-1970)	Precipitation (Millimeters)				Relative Humidity (Percent)				Wind Speed (m.p.s.)		Annual Mean Number of Days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Normal (1941-1970)		Extremes			Normal (1941-1970)	Extremes		Snow @		Humidity		Wind Speed		Sunrise to Sunset		Thunderstorms	Heavy Fog																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		January	July	Annual	Record			Highest	Lowest	Degree Days (1941-1970)	Wettest Month	Driest Month	Annual	Wettest Month	Driest Month	Wettest Month	Driest Month			Wettest Month	Driest Month	Wettest Month	Driest Month																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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January	July	Annual	Record	Highest	Lowest	January	Wettest Month	Driest Month	Annual	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month	Wettest Month	Driest Month

# NORMALS, MEANS AND EXTREMES

YEAR 1979

State and Station	Elevation Ground (Meters)	Temperature (°C)				Normal Heating Degree Days (1941-1970)		Precipitation (Millimeters)				Relative Humidity (Percent)		Wind Speed (m.p.s.)		Sunshine (% of Possible)		Annual Mean Number of Days			
		Normal (1941-1970)		Extremes		Normal (1941-1970)		Normal (1941-1970)		Extremes		Snow @		Mean Speed		Sunrise to Sunset		Precipitation		Temperature	
		January		Record		Record		Wettest		Wettest		Ex-treme		January		January		January		January	
		Maximum	Minimum	Highest	Lowest	Length (Yrs)	Record	Month	Month	Month	Month	Mean Total	Maximum	7:00 a.m. EST	7:00 p.m. EST	7:00 a.m. EST	7:00 p.m. EST	Fastest Mile	July	January	July
		Daily	Daily	Record	Record			Seasonal	Annual	Wettest	Driest	In 24 Hours	Maximum	7:00 a.m. EST	7:00 p.m. EST	7:00 a.m. EST	7:00 p.m. EST	January	July	January	July

Data from airport or from airport and Urban site records combined.  
 U indicates Urban, R indicates Rural Sites.  
 Data for this table are based on records through 1979 except as indicated in notes.  
 Date after station name indicates last year included in summarization of data.  
 Normal values are based on the period 1941-1970, and are means adjusted to represent observations taken at the present standard location, except that stations closed before 1971 are based on the 1931-1960 period.  
 Degree days are based on a daily average of 18.3 °C.  
 For detailed periods of record see ANNUAL, LOCAL CLIMATOLOGICAL DATA, 1979.  
 Clear day averages 0-3 tenths sky cover, Partly Cloudy 4-7 tenths and Cloudy 8-10 tenths.  
 Heavy Fog includes data formerly referred to as "Dense" or "Thick".  
 The upper visibility limit for heavy fog is 402.3 meters.  
 \* Less than one-half.  
 B Number of days Maximum 21.1 or above (Alaskan stations).

1 Means and extremes are from post office location through 1962.  
 e Relative humidity readings 8:00 a.m. and NOON Local Time.

x Sun below horizon continuously Nov. 19 - Jan., 23.  
 v Sun below horizon continuously Nov. 24 - Jan., 17.  
 (x and v)-Yearly totals for period sun above horizon.  
 m Mean and speed record for 1949-1961 1958-1962.  
 \* Includes all forms of frozen precipitation, except hail occurring alone.

# ELEVATIONS

State and Station			State and Station			State and Station			State and Station		
	Ft	Mtrs		Ft	Mtrs		Ft	Mtrs		Ft	Mtrs
ALABAMA			IDAHO			NEVADA			TENNESSEE		
Anniston	630	192	Boise	2868	871	Elko	5077	1547	Bristol	1525	465
Birmingham	641	196	Lewiston	1436	438	Ely	6262	1909	Chattanooga	688	210
Montgomery	221	67	Pocatello	4478	1365	Las Vegas	2180	664	Knoxville	980	299
	202	62				Reno	4400	1341	Memphis	284	87
ALASKA			ILLINOIS			NEW HAMPSHIRE			Nashville		
Anchorage	132	40	Cairo	357	109	Wannemucca	4314	1314	Oak Ridge	R 914	279
Barrow	13	4	Chicago (O'Hare)	674	205	CONCORD	346	105	TEXAS		
Barter Island	90	15	Chicago (Midway)	623	190	Mt. Washington	6267	2056	Arlene	1753	534
Bethel	150	46	Moline	594	181				Amarillo	3604	1099
Bettles	672	205	Peoria	662	202				Austin	621	189
Big Delta	1274	389	Rockford	743	226	NEW JERSEY			Brownsville	20	6
Cold Bay	103	31	Springfield	613	187	Atlantic City	67	20	Corpus Christi	44	13
Cold Bay	454	138	INDIANA			Newark	30	9	Dallas/Fort Worth	576	176
Fairbanks	1579	481	Evansville	388	118	Trenton	U 190	58	Del Rio	1027	313
Fort Smith	73	22	Fort Wayne	828	252				El Paso	3916	1194
Juneau	24	7	Indianapolis	808	246	NEW MEXICO			Galveston	U 54	16
King Salmon	49	15	South Bend	773	236	Albuquerque	5314	1620	Houston Intercom	108	33
Kodiak	111	34	IOWA			Clayton	4972	1515	Lubbock	3241	988
Kotzebue	16	5	Burlington	702	214	Roswell	3619	1103	Midland	2862	872
Mc Grath	338	103	Des Moines	963	294				Port Arthur	22	7
Nome	22	7	Dubuque	1080	329	NEW YORK			San Angelo	1908	582
St. Paul Island	28	9	Sioux City	1103	336	Albany	292	89	San Antonio	794	242
Seward	2405	733	Waterloo	878	268	Binghamton	1638	499	Victoria	117	36
Talkeetna	356	180	KANSAS			Buffalo	706	215	Waco	508	155
Unalakleet	21	6	Concordia	1484	452	New York	L 87	27	Wichita Falls	1030	314
Yakutat	31	9	Dodge City	2592	790	New York Kennedy AP	22	7	UTAH		
ARIZONA			Goodland	3088	1124	New York LaGuardia	31	9	Milford	5033	1534
Flagstaff	7018	2139	Topeka	885	270	Rochester	555	169	Salt Lake City	4227	1288
Phoenix	1107	337	Wichita	1340	408	Syracuse	408	124	Wendover	4239	1292
Tucson	2555	779	KENTUCKY			NORTH CAROLINA			VERMONT		
Winslow	4883	1488	Covington	877	267	Asheville	2170	661	Burlington	340	104
Yuma	206	63	Lexington	989	301	Cape Hatteras	R 11	3	VIRGINIA		
ARKANSAS			Louisville	488	149	Charlotte	769	234	Lynchburg	937	286
Fort Smith	463	141	LOUISIANA			Greensboro	886	270	Norfolk	30	9
Little Rock	265	81	Alexandria	118	36	Raleigh	441	134	Richmond	177	54
CALIFORNIA			Baton Rouge	76	23	Wilmington	38	12	Roanoke	1176	358
Bakersfield	492	150	Lake Charles	32	10	NORTH DAKOTA			WASHINGTON		
Bishop	4145	1263	New Orleans	30	9	Bismarck	1660	506	Olympia	200	61
Blue Canyon	5283	1610	Shreveport	259	79	Fargo	899	274	Quillayute	205	62
Eureka	60	18	MAINE			Williston	1905	581	Seattle-Tacoma	450	137
Fresno	327	100	Caribou	628	191	OHIO			Seattle	28	9
Long Beach	40	12	Portland	63	19	Akron	1236	377	Spokane	2365	721
Los Angeles	104	32	MARYLAND			Cincinnati Abbe Ob.	627	191	Stampede Pass	R 3967	1209
Los Angeles	U 512	156	Baltimore	155	47	Cleveland	805	245	Walla Walla	U 991	302
Mt. Shasta	R 3587	1093	MASSACHUSETTS			Columbus	833	254	Yakima	1066	325
Oakland	7	2	Blue Hill Obs.	R 640	195	Dayton	1003	306	WEST INDIES		
Red Bluff	353	108	Boston	29	9	Mansfield	1312	400	San Juan, P. R.	62	19
Sacramento	26	8	Worcester	1017	310	Toledo	692	211	WEST VIRGINIA		
Sandberg	R 4523	1379	MICHIGAN			Youngstown	1186	361	Beckley	2514	766
San Diego	28	9	Alpena	693	211	OKLAHOMA			Charleston	951	290
San Francisco	U 155	47	Detroit	626	191	Oklahoma City	1304	397	Elkins	1997	608
San Francisco	18	5	Detroit Metro.	664	202	Tulsa	676	206	Huntington	838	255
Santa Maria	238	73	Flint	766	233	OREGON			Parkersburg	U 637	194
Stockton	27	8	Grand Rapids	803	245	Astoria	22	7	WISCONSIN		
COLORADO			Houghton Lake	1160	354	Burns	U 4170	1271	Green Bay	702	214
Alamosa	7541	2298	Lansing	874	266	Eugene	373	114	LaCrosse	672	205
Colorado Springs	6170	1881	Marquette	U 874	224	Medford	4056	1236	Madison	866	264
Denver	5332	1625	Muskegon	633	193	Pendleton	1329	405	Milwaukee	693	211
Grand Junction	4839	1475	Sault Ste. Marie	724	221	Portland	1495	456	WYOMING		
Pueblo	4720	1439	MINNESOTA			Salem	39	12	Casper	5290	1612
CONNECTICUT			Duluth	1417	432	Sexton Summit	R 3841	1171	Cheyenne	6141	1872
Bridgeport	17	5	International Falls	1183	361	PACIFIC AREA			Lander	5558	1694
Hartford	179	55	Minneapolis	838	255	Guam Taguac	R 365	111	Sheridan	3968	1209
DELAWARE			Rochester	1320	402	Johnston	17	5			
Wilmington	80	24	St. Cloud	1043	318	Korer	R 109	33			
DISTRICT OF COLUMBIA			MISSISSIPPI			Kwajalein	26	8			
Wash. Dulles Int. AP	323	98	Jackson	331	101	Majuro	10	3			
Wash. Nat'l AP	65	20	Meridian	310	94	Pago Pago	10	3			
FLORIDA			MISSOURI			Ponape	R 151	46			
Apalachicola	U 35	11	Columbia, Regional	898	274	Truk Moen Island	8	2			
Daytona Beach	41	12	Kansas City	750	229	Wake Island	12	4			
Fort Myers	12	4	St. Joseph	817	249	Yap	R 56	17			
Jacksonville	31	9	St. Louis	564	172	PENNSYLVANIA					
Key West	21	6	Springfield	1270	387	Allentown	385	117			
Lakeland	U 236	72	MONTANA			Erie	737	225			
Orlando	12	4	Billings	3570	1088	Harrisburg	351	107			
Orlando	119	36	Glasgow	2298	700	Philadelphia	28	9			
Pensacola	118	36	Great Falls	3657	1115	Pittsburgh	1225	373			
Tallahassee	68	21	Harve	2599	792	Pittsburgh	U 1017	334			
Tampa	11	3	Helena	3898	1188	Scranton	948	289			
West Palm Beach	21	6	Kalispell	2973	906	Williamsport	525	160			
GEORGIA			Miles City	2634	803	RHODE ISLAND					
Athens	811	247	Missoula	3189	972	Block Island	118	36			
Atlanta	1034	315	NEBRASKA			Providence	62	19			
Augusta	148	45	Grand Island	1856	566	SOUTH CAROLINA					
Columbus	394	120	Lincoln	1189	362	Charleston	48	15			
Macon	362	110	Norfolk	1551	473	Columbia	225	69			
Rome	643	196	North Platte	2787	849	Grnvl-Spartanburg	971	296			
Savannah	51	16	Omaha	982	299	SOUTH DAKOTA					
HAWAII			Scottsbluff	3958	1206	Aberdeen	1300	396			
Hilo	36	11	Valentine	2598	792	Huron	1289	393			
Honolulu	15	5				Rapid City	3168	966			
Kahului	67	20				Sioux Falls	1427	435			
Maui	148	45									

Data from airports unless otherwise specified. U indicates Urban, R indicates Rural, sites.

These are the elevations of the barometer (in feet and meters above mean sea level) to which station pressure values pertain in the

"Climatological Data" table in the monthly publication CLIMATOLOGICAL DATA NATIONAL SUMMARY.



## GENERAL SUMMARY OF TORNAOES , 1979

HENRY N. VIGANSKY  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
ENVIRONMENTAL DATA AND INFORMATION SERVICE  
NATIONAL CLIMATIC CENTER

A total of 852 tornadoes was reported in the United States and its territories in 1979. Tornadoes occurred on 186 days, killed 84 people, injured 3,077 others, and caused property losses well in excess of one billion dollars. Twenty-one of these storms were killer tornadoes. In 1979 tornadoes destroyed or damaged 1,061 mobile homes resulting in 9 deaths and injuries to 130 persons.

New monthly records of tornado occurrences by state, territory, and nation, state to state border crossings, and location of killer tornadoes are shown in the following three tables:

### NEW MONTHLY TORNAO RECORDS

<u>Month</u>	<u>State</u>	<u>New Record</u>	<u>Previous Record</u>
January	California	3	2 (1958)
	Florida	12	11 (1978)
April	Arkansas	29	19 (1973)
May	Florida	27	25 (1978)
June	Minnesota	17	13 (1968)
	Wyoming	14	12 (1976)
July	Alabama	4	2 (1977)
	Colorado	21	12 (1958)
	Wyoming	18	8 (1958)
August	United States	127	107 (1974)
	Iowa	16	10 (1964)
	Nevada	2	1 (1975)
	Oklahoma	13	5 (1976)
	Virgin Islands	1	0
	Wisconsin	15	10 (1968)
	Wyoming	7	5 (1975)
September	Florida	24	11 (1947)
	Georgia	4	2 (1956)
	Maryland	7	2 (1935)
	Virginia	8	6 (1935)
	Wyoming	2	1 (1973)
October	Pennsylvania	6	1 (1975)
	Virginia	2	1 (1976)
	West Virginia	1	0
November	Pennsylvania	3	2 (1957)

### STATE TO STATE BORDER CROSSINGS

<u>DATE</u>	<u>NUMBER</u>	<u>STATE</u>	<u>STATE</u>
March 19	1	from Missouri	into Iowa
April 10	3	from Texas	into Oklahoma
April 11	1	from Oklahoma	into Arkansas

# GENERAL SUMMARY OF TORNADOES

## KILLER TORNADOES

<u>Date</u>	<u>State</u>	<u>County</u>	<u>Total Deaths</u>
March 31	Kentucky	Barren	1
April 10	Oklahoma	Comanche	3
10	Texas	Wichita	42
10	Texas	Wilbarger	11
10	Texas	Wilbarger	1
12	Indiana	Warrick	1
May 2	Oklahoma	Woodward	1
8	Florida	Polk	1
June 19	South Dakota	Roberts	1
28	Iowa	Calhoun	3
28	Iowa	Kossuth	2
30	Tennessee	Jackson	2
July 16	Wyoming	Laramie	1
August 9	Wisconsin	Calumet	1
10	Massachusetts	Worcester	2
28	Iowa	Page	1
		Fremont	1
September 5	Pennsylvania	Chester	1
5	Virginia	Fairfax	1
October 3	Connecticut	Hartford	3
22	Arkansas	Chicot	1
30	Oklahoma	Carter	3

Some of the more significant tornadoes are described briefly in the following annual summary:

On New Years Day at 2:05 p.m., the first tornado of the 1979 season touched down briefly in Jay, Florida, damaging power lines and uprooting a few trees.

At 4:30 p.m., on March 31, a tornado touched down 4 miles (6.4 km) east of Hays, Kentucky, and left an 8 mile (12.9 km) path of destruction. This storm was responsible for the first fatality of the 1979 season.

During the afternoon of April 10, a line of fast moving thunderstorms spawned 10 destructive tornadoes in northern Texas. At 3:20 p.m., a large tornado touched down in the Lockett area and moved northeastward through Vernon, Texas, and then crossed the Red River into Oklahoma. This storm was responsible for one death in Lockett, 10 in Vernon, and for injuries to 67 people. Total property damage was estimated to be in excess of 27 million dollars. This same afternoon a violent tornado touched down at 5:50 p.m. 3 miles (4.8 km) northeast of Halliday, Texas, and then moved northeastward leaving a path of destruction from 1/4 mile (.4 km) up to one mile (1.6 km) wide as it passed through 8 miles (12.9 km) of residential area in Wichita Falls, Texas. Three thousand and ninety-five suburban homes, 1,062 apartment units and 93 mobile homes were demolished. Six hundred homes and 130 condominium units sustained major damage. The Ben Milam Elementary and the Joe B. McNeil Junior High Schools were damaged beyond repair, and the city's eight other elementary schools received minor damage. Numerous business establishments and two shopping centers were heavily damaged. It was estimated that about 20,000 people were left homeless, 1,740 people were injured and 42 lost their lives. Twenty-five of the fatalities were automobile related; sixteen people were killed while attempting to evade the storm. Eleven of these 16 people left homes that were not damaged by the tornado. This tornado ranks fifth in being the most destructive tornado in the nation's history. This same storm system also spawned the tornado having the longest path for the 1979 season. The tornado touched down near Harrold, Texas, and then crossed the Red River into Oklahoma. This twister was on the ground 9 miles (14.5 km) in Texas and 55 miles (88.5 km) in Oklahoma. Damage was light in Texas, but the storm was responsible for the death of one woman. The airport in Grandfield, Oklahoma was demolished, 8 airplanes were destroyed and one was badly damaged. The storm continued on its northeastward course destroying 18 homes, 9 mobile homes and 2 grain elevators before it subsided in the northwestern corner of Stephens County, Oklahoma.

## GENERAL SUMMARY OF TORNADOES

On May 8, about 2:15 p.m., a tornado touched down southwest of Auburndale, Florida. The storm demolished a 200-unit trailer park, destroyed several homes, severely damaged a citrus processing plant, and ripped off the roofs from the Auburndale Senior, Junior and Middle School complex. The school children took refuge in the interior hallways and by taking this safety precaution, averted a major disaster. Thirteen students and 27 other people were injured. One elderly lady was killed when the storm demolished a concrete block shed in which she had sought shelter from the oncoming tornado.

During the early evening hours of June 28, an outbreak of 10 tornadoes swept through north-central Iowa. One of the two most destructive of these tornadoes touched down 3 miles (4.8 km) southwest of Bancroft and moved south-southeast to one mile (1.6 km) northeast of Irvington, Iowa. The city of Algona was in the direct path of the storm resulting in 104 destroyed homes, 349 damaged homes and 20 razed business establishments. Two people lost their lives and 34 were injured. The other destructive twister touched down 6 miles (9.7 km) west of Palmer and left a 30 mile (48.3 km) long path of rubble 1/2 mile (.8 km) northwest of Knierim, Iowa. As the tornado passed through Manson, the path widened to 1,000 feet (305 m) and destroyed 110 homes, the junior high school and 25 businesses. The storm was responsible for 26 injuries and three fatalities.

At 3:25 p.m. on July 16, the most devastating tornado in the history of Wyoming developed from a moderate thunderstorm and moved through the northern section of Cheyenne, destroying 140 homes, 17 mobile homes and damaging 325 homes. Also, this storm caused major damage to the Cheyenne Municipal Airport including four C-130 airplanes. A 14 month old boy was killed, his mother and another child were seriously injured, and 38 other people received minor injuries.

During the period September 3 through September 6, Hurricane David spawned 34 tornadoes along the eastern coast of the United States. The following states reported tornadoes: Delaware 1; Florida 10; Maryland 7; New Jersey 1; Pennsylvania 2; South Carolina 5; and, Virginia 8. Two of these tornadoes are classified as killer tornadoes, each causing the death of one person, and they were recorded in Pennsylvania and Virginia.

On October 3, a huge tornado struck without warning at the Bradley International Airport, Connecticut, and caused considerable damage to the Bradley Air Museum. Sixteen of the vintage airplanes stored at the museum were demolished and 13 others badly damaged. Also, 17 corporate aircraft received extensive damage. Another area hard hit by the storm was between Bradley International Airport and Windsor Locks, where scores of businesses and homes were reduced to rubble. Damage exceeded 200 million dollars and the tornado left a toll of three dead and 500 injured. This was the first killer tornado in the state of Connecticut during the month of October since records have been kept.

On December 23 at 8:20 p.m., the final tornado of the 1979 season touched down in the northeastern section of Dermott, Arkansas. The storm demolished one mobile home and a frame house and caused considerable damage to four other houses. No fatalities or injuries were reported.

Additional tornado information is presented in the following charts and tables. More detailed information about tornadic activity can be obtained from the monthly Storm Data publications. The National Severe Storms Forecast Center has developed a magnetic tape containing tornado statistics for the period 1950-1979. The tape contains the date/time (year, month, day and hour), location (latitude-longitude, state and county), path (length and width), number of fatalities, number of injuries and amount of property damage. A copy of this tape can be obtained by contacting the National Climatic Center, Federal Building, Asheville, NC 28801.



# TORNADO SUMMARY 1979

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
ALABAMA Number Days Deaths Injuries			1 1 1 3	2 2 3 3	5 2 1 1	1 1 1 1	4 3 3 4		2 2 2 2				23 13 0 46
ALASKA (None)													
ARIZONA Number Days Deaths Injuries			1 1 3					1 1	1 1				3 3 3 3
ARKANSAS Number Days Deaths Injuries			29 4 55	6 2 2	2 1 2	2 1 2	1 1 1			1 1 2			42 11 1 59
CALIFORNIA Number Days Deaths Injuries	3 2		1 1										4 3 0 0
COLORADO Number Days Deaths Injuries			1 1	3 2	12 6 1	21 11							37 20 0 1
CONNECTICUT Number Days Deaths Injuries													1 1 3 500
DELAWARE Number Days Deaths Injuries													2 2 0 5
DISTRICT OF COLUMBIA (None)													
FLORIDA Number Days Deaths Injuries	12 6 1		3 2 6	2 1 112	27 4 112	2 2 1	8 6 6	8 4 1	24 10 4	1 1 4	2 2 3		89 38 130
GEORGIA Number Days Deaths Injuries			2 1 1	9 4 11			2 2		4 1		3 3		20 11 12
HAWAII (None)													
IDAHO Number Days Deaths Injuries													1 1 0 0
ILLINOIS Number Days Deaths Injuries			1 1		3 3 1	1 1 1	6 5 1			1 1 1			12 11 0 1
INDIANA Number Days Deaths Injuries													23 13 0 46
IOWA Number Days Deaths Injuries													3 3 3 3
KANSAS Number Days Deaths Injuries													42 11 1 59
KENTUCKY Number Days Deaths Injuries													4 3 0 0
LOUISIANA Number Days Deaths Injuries													37 20 0 1
MAINE (None)													1 1 3 500
MARYLAND Number Days Deaths Injuries													2 2 0 5
MASSACHUSETTS Number Days Deaths Injuries													2 2 0 5
MICHIGAN Number Days Deaths Injuries													2 2 0 5
MINNESOTA Number Days Deaths Injuries													2 2 0 5
MISSISSIPPI Number Days Deaths Injuries													2 2 0 5
MISSOURI Number Days Deaths Injuries													2 2 0 5
MONTANA Number Days Deaths Injuries													2 2 0 5
NEBRASKA Number Days Deaths Injuries													2 2 0 5
NEVADA Number Days Deaths Injuries													2 2 0 5
NEW HAMPSHIRE Number Days Deaths Injuries													2 2 0 5
NEW JERSEY Number Days Deaths Injuries													2 2 0 5
NEW MEXICO Number Days Deaths Injuries													2 2 0 5
NEW YORK Number Days Deaths Injuries													2 2 0 5
NORTH CAROLINA Number Days Deaths Injuries													2 2 0 5
NORTH DAKOTA Number Days Deaths Injuries													2 2 0 5
OHIO Number Days Deaths Injuries													2 2 0 5
OKLAHOMA Number Days Deaths Injuries													2 2 0 5
OREGON Number Days Deaths Injuries													2 2 0 5
PENNSYLVANIA Number Days Deaths Injuries													2 2 0 5
RHODE ISLAND Number Days Deaths Injuries													2 2 0 5
SOUTH CAROLINA Number Days Deaths Injuries													2 2 0 5
SOUTH DAKOTA Number Days Deaths Injuries													2 2 0 5
TENNESSEE Number Days Deaths Injuries													2 2 0 5
TEXAS Number Days Deaths Injuries													2 2 0 5
UTAH Number Days Deaths Injuries													2 2 0 5
VERMONT Number Days Deaths Injuries													2 2 0 5
VIRGINIA Number Days Deaths Injuries													2 2 0 5
WASHINGTON Number Days Deaths Injuries													2 2 0 5
WEST VIRGINIA Number Days Deaths Injuries													2 2 0 5
WISCONSIN Number Days Deaths Injuries													2 2 0 5
WYOMING Number Days Deaths Injuries													2 2 0 5

# TORNADO SUMMARY 1979

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
NEBRASKA													
Deaths													12
Injuries													
NEW HAMPSHIRE													
Deaths													2
Injuries													
NEW JERSEY													
Deaths													
Injuries													
NEW MEXICO													
Deaths													14
Injuries													11
NEW YORK													
Deaths													8
Injuries													0
NORTH CAROLINA													
Deaths													1
Injuries													
NORTH DAKOTA													
Deaths													25
Injuries													14
OHIO													
Deaths													4
Injuries													4
OKLAHOMA													
Deaths													51
Injuries													7
PENNSYLVANIA													
Deaths													140
Injuries													
TEXAS													
Deaths													
Injuries													
UTAH													
Deaths													
Injuries													
VIRGINIA													
Deaths													
Injuries													
WISCONSIN													
Deaths													
Injuries													
WYOMING													
Deaths													14
Injuries													7
UNITED STATES													
Deaths													1
Injuries													5

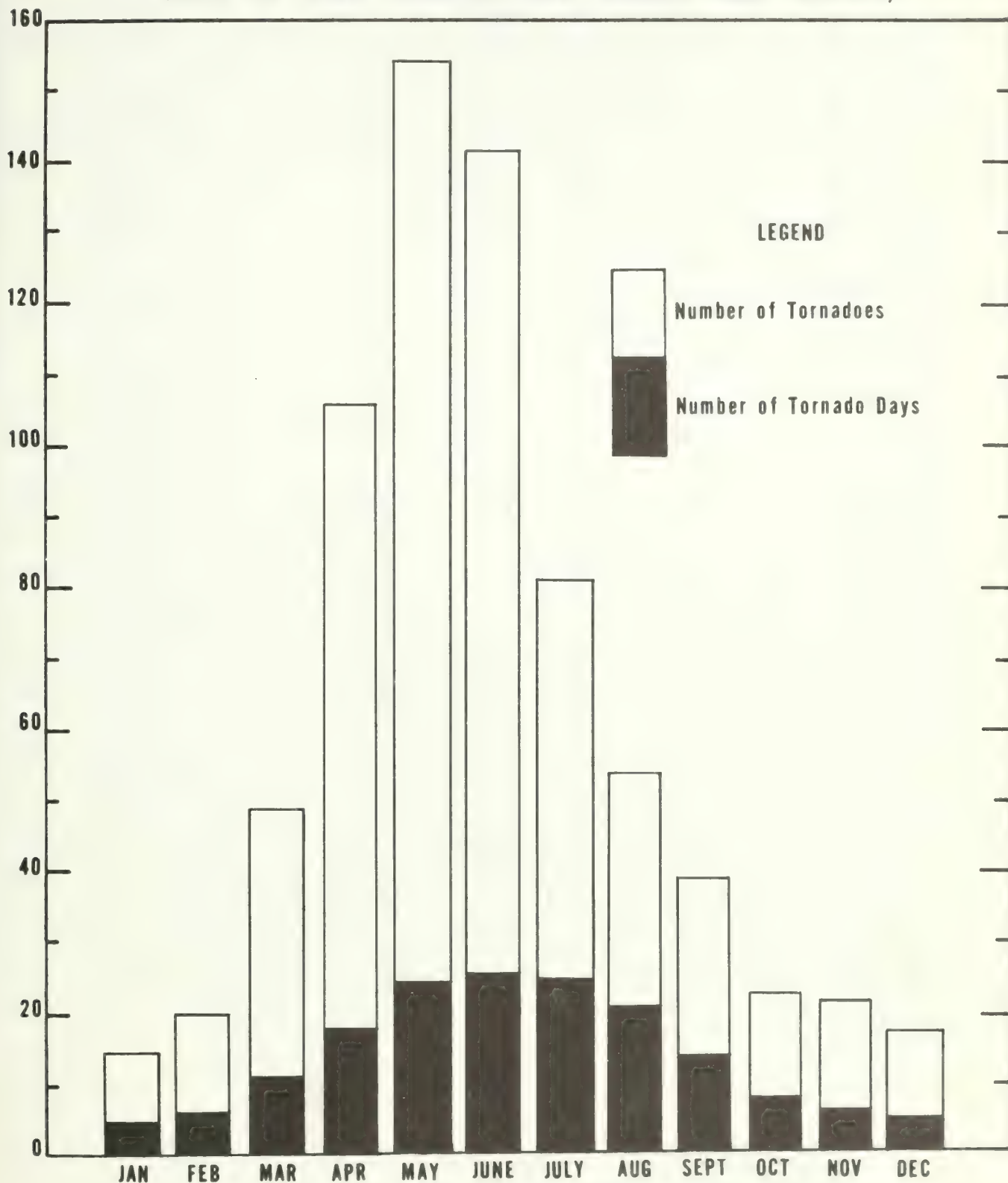
NUMBER OF TORNADES, TORNADO DAYS, AND DEATHS BY MONTHS, 1953 - 1979

YEAR	JANUARY			FEBRUARY			MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER			OCTOBER			NOVEMBER			DECEMBER			ANNUAL			
	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS	NUMBER	DAYS	DEATHS				
1953	14	6	0	16	3	3	40	10	24	47	16	34	94	21	161	111	24	244	31	19	0	24	15	0	5	4	0	6	4	0	12	6	0	21	8	49	421	136	515	
1954	2	1	0	17	9	2	63	13	10	112	22	7	101	22	9	107	26	5	45	23	0	49	21	1	21	10	3	14	8	2	2	2	0	17	3	1	550	160	36	
1955	3	2	0	4	3	0	43	15	5	99	18	7	147	26	103	154	28	2	49	21	5	33	18	0	15	8	2	23	7	1	20	4	1	3	2	0	593	152	126	
1956	2	2	0	47	12	8	31	7	1	85	15	67	79	24	4	65	21	0	91	26	1	43	20	2	16	10	0	29	8	0	7	6	0	9	4	0	504	155	83	
1957	17	3	13	5	3	0	38	7	1	216	21	29	227	26	87	147	25	14	55	19	0	20	14	0	17	10	2	18	11	2	58	11	25	38	4	19	856	154	192	
1958	12	7	0	20	5	13	15	10	0	76	19	4	68	21	0	127	27	42	121	30	1	46	20	1	24	14	1	9	6	4	45	6	0	1	1	0	564	166	66	
1959	16	2	3	20	5	21	43	11	9	30	12	1	226	28	8	73	25	2	63	24	0	38	18	0	58	15	14	24	10	0	11	4	0	2	2	0	604	156	58	
1960	9	4	0	28	10	0	28	10	0	70	20	7	201	26	34	124	27	3	43	22	0	47	23	1	22	13	0	18	10	1	25	6	0	1	1	0	616	172	46	
1961	1	1	0	31	8	0	124	17	7	74	19	3	137	25	23	107	23	2	77	27	0	27	16	0	53	16	15	14	5	0	36	7	1	16	5	0	697	169	51	
1962	12	3	1	25	7	0	37	9	17	41	8	1	200	22	3	171	29	0	78	26	0	51	21	6	0	24	11	0	11	10	0	5	4	0	2	2	0	657	152	28
1963	15	5	1	6	3	0	48	12	8	84	14	16	71	21	1	91	23	0	62	26	0	26	13	2	33	13	3	13	5	0	15	6	0	0	0	0	464	141	31	
1964	14	3	10	2	2	0	36	11	6	157	23	15	135	20	16	136	24	0	63	23	0	79	23	2	25	10	0	22	4	22	17	8	0	18	5	2	704	156	73	
1965	21	11	0	32	4	0	34	9	2	129	20	264	275	25	17	147	28	6	86	26	0	61	23	1	64	21	0	16	4	1	34	6	5	7	4	0	906	181	296	
1966	1	1	0	28	5	0	12	6	58	80	20	12	98	17	0	126	28	19	100	27	3	58	21	0	22	13	0	29	6	6	20	3	0	11	3	0	585	150	98	
1967	39	4	7	8	5	0	42	14	3	149	18	73	116	25	3	210	28	6	90	25	1	28	16	2	139	16	5	36	7	4	8	5	0	61	10	10	926	173	114	
1968	5	3	0	7	3	0	28	8	0	102	15	40	145	26	72	136	27	11	56	22	2	66	23	2	25	14	0	14	9	0	44	12	3	32	9	1	660	171	131	
1969	3	1	32	5	5	0	8	2	1	68	15	2	145	25	4	137	28	7	99	27	0	69	21	19	0	20	11	0	26	10	0	5	3	0	23	7	1	608	155	66
1970	9	5	0	16	3	0	25	12	2	117	16	29	88	19	26	134	24	6	81	26	3	55	21	0	54	20	0	50	13	6	10	4	0	14	8	0	653	171	72	
1971	18	7	1	83	12	131	40	13	2	75	14	11	166	24	7	199	28	1	100	30	1	50	21	0	47	15	0	38	12	0	16	7	0	56	9	2	888	192	156	
1972	33	10	5	7	4	0	69	17	0	96	20	16	140	27	0	114	25	2	115	29	0	59	23	2	49	19	0	34	10	0	17	4	2	8	6	0	741	194	27	
1973	33	7	1	10	4	0	80	16	17	150	22	10	250	26	35	224	26	2	80	26	0	51	23	4	69	22	3	25	11	0	81	11	12	49	12	3	1102	206	87	
1974	24	8	2	23	9	0	36	12	1	269	22	313	144	28	10	194	26	31	59	19	0	107	26	0	25	11	0	45	10	4	13	8	0	8	5	0	947	184	361	
1975	52	7	12	45	12	7	84	16	12	108	20	13	188	30	5	196	28	6	79	26	2	60	25	2	34	17	0	12	7	0	40	8	0	22	8	1	920	204	60	
1976	12	5	0	37	6	5	180	18	21	113	23	1	155	24	8	169	26	3	84	28	2	38	18	1	35	15	3	11	5	0	0	0	1	1	0	835	169	44		
1977	5	4	0	17	3	2	64	15	0	88	15	26	228	29	4	132	27	0	99	27	1	82	26	6	65	21	1	25	5	1	24	10	0	23	7	2	852	189	43	
1978	23	7	2	6	3	0	17	8	0	107	17	4	213	27	7	148	28	17	143	30	11	65	24	1	20	10	6	7	5	0	9	5	0	30	9	5	788	173	53	
1979	16	9	0	4	3	0	53	13	1	120	17	58	112	23	2	150	24	8	132	30	1	127	27	5	68	19	2	47	12	7	21	8	0	2	1	0	852	186	84	
1953-79																																								
TOTAL	411	128	90	549	151	192	1318	311	208	2862	481	1059	4149	657	649	3829	703	439	2181	684	34	1459	560	60	1049	378	60	616	214	61	595	164	49	475	136	96	19493	4567	2997	
MEAN	15	5	3	20	6	7	49	12	8	106	18	39	154	24	24	142	26	16	81	25	1	54	21	2	39	14	2	23	8	2	22	6	2	18	5	4	722	169	111	



# AVERAGE NUMBER OF TORNADOES AND TORNADO DAYS EACH MONTH IN THE UNITED STATES

(BASED ON 19,493 TORNADOES THAT OCCURRED FROM 1953-1979)



# NUMBER OF TORNADES, TORNADO DAYS, DEATHS, AND RESULTING LOSSES BY YEARS, 1916 - 79

YEAR	Number Tornadoes	Tornado Days	Total Deaths	Most Deaths in Single Tornado	Total Property Losses †	PROPERTY LOSS FREQUENCY*		
						Category 5	Category 6	Category 7 and Over
1916	90	36	150	30	6	7	1	0
1917	121	38	551	101	7	21	9	0
1918	81	45	136	36	7	20	5	0
1919	64	35	206	59	7	10	2	0
1920	87	50	499	87	7	14	10	0
1921	105	55	202	61	7	22	3	0
1922	108	64	135	16	7	27	5	0
1923	102	59	110	23	6	21	1	0
1924	130	57	376	85	7	26	11	1
1925	119	65	794	689	7	34	2	1
1926	111	57	144	23	6	28	0	0
1927	163	62	540	92	7	42	9	1
1928	203	79	95	14	7	40	7	0
1929	197	74	274	40	7	48	4	0
1930	192	72	179	41	7	38	6	0
1931	94	57	36	6	6	14	1	0
1932	151	67	394	37	7	23	1	1
1933	258	96	362	34	7	46	9	0
1934	147	77	47	6	6	10	3	0
1935	180	77	71	11	6	29	0	0
1936	151	71	552	216	7	17	5	1
1937	147	75	29	5	6	24	0	0
1938	213	76	183	32	7	29	6	0
1939	152	75	91	27	7	21	3	0
1940	124	62	65	18	7	13	2	0
1941	118	57	53	25	6	24	1	0
1942	167	66	384	65	7	42	10	0
1943	152	61	58	5	7	28	8	0
1944	169	68	275	100	7	50	9	0
1945	121	66	210	69	7	21	10	1
1946	106	65	78	15	7	29	7	0
1947	165	78	313	169	7	46	7	1
1948	183	68	139	33	7	62	11	2
1949	249	80	211	58	7	54	13	0
1950	200	88	70	18	7	47	9	0
1951	262	113	34	6	7	35	11	2
1952	240	98	229	57	7	53	19	0
1953	421	136	515	116	8	63	18	7
1954	550	160	36	6	7	63	8	1
1955	593	152	126	80	7	74	13	1
1956	504	155	83	25	7	83	24	1
1957	856	154	192	44	8	129	26	3
1958	564	166	66	19	7	70	8	1
1959	604	156	58	21	7	70	4	1
1960	616	172	46	16	7	65	11	1
1961	697	169	51	16	7	103	21	1
1962	657	152	28	17	7	51	10	0
1963	464	141	31	5	7	77	15	1
1964	704	156	73	22	7	113	17	5
1965	906	181	296	44	8	126	30	11
1966	585	150	98	58	8	79	13	4
1967	926	173	114	33	8	125	33	8
1968	660	171	131	34	8	82	26	6
1969	608	155	66	32	8	98	16	3
1970	653	171	72	26	8	97	24	6
1971	888	192	156	58	8	71	30	5
1972	741	194	27	6	8	100	28	1
1973	1102	206	87	7	9	219	67	9
1974	947	184	361	34	9	166	82	25
1975	920	204	60	9	9	189	31	11
1976	835	169	44	5	8	145	41	5
1977	852	189	43	22	8	173	40	6
1978	788	173	53	16	9	153	53	6
1979	852	186	84	42	9	169	62	11
Means: 1953-79	722	169	111	---	---	109	28	5

NOTE: -- The above estimated losses are based on values at time of occurrence.

† Storm damages in categories:

- |                                |                                  |
|--------------------------------|----------------------------------|
| 5. \$50,000 to \$500,000       | 8. \$50 million to \$500 million |
| 6. \$500,000 to \$5 million    | 9. \$500 million and over        |
| 7. \$5 million to \$50 million |                                  |

\*Number of times property losses reported in Storm Data in Categories 5, 6, 7 and over.

# NUMBER OF TORNADES, TORNADO DAYS, AND DEATHS BY STATES, 1953-79

STATE	TORNADES							DAYS		DEATHS		
	TOTAL	AVER AGE	GREAT EST	YEAR	LEAST	YEAR	Per # 10,000 Sq. Mi.	TOTAL	AVER AGE	TOTAL	AVER AGE	Per # 10,000 Sq. Mi.
Alabama	536	20	45	1973+	5	1956	3.85	291	11	202	7	39
Alaska	1	0	1	1959	0	1979+	.00	1	0	0	0	0
Arizona	99	4	17	1972	0	1965+	.32	82	3	3	0	0
Arkansas	549	20	50	1973	2	1969	3.83	278	10	121	4	23
California	88	3	13	1978	0	1968+	.21	64	2	0	0	0
Colorado	435	16	42	1976	1	1959	1.55	284	11	2	0	0
Connecticut	41	2	8	1973	0	1978+	3.03	37	1	4	0	8
Delaware	26	1	5	1975	0	1978+	4.68	24	1	0	0	0
District of Columbia	0	0	0	-	0	1978+	.00	0	0	0	0	0
Florida	1095	41	97	1975	10	1956	6.93	697	26	51	2	9
Georgia	562	21	46	1971+	7	1960	3.54	326	12	72	3	12
Hawaii	16	1	4	1971	0	1978+	.92	13	0	0	0	0
Idaho	36	1	5	1967	0	1977	.16	28	1	0	0	0
Illinois	736	27	107	1974	4	1953	4.83	342	13	129	5	23
Indiana	603	22	48	1973	6	1972+	6.15	290	11	200	7	55
Iowa	726	27	54	1964	7	1956+	4.78	339	13	54	2	10
Kansas	1194	44	97	1955	14	1976	5.38	555	21	162	6	20
Kentucky	214	8	34	1974	0	1953	1.96	121	4	99	4	25
Louisiana	530	20	55	1974	3	1955	4.05	334	12	86	3	18
Maine	70	3	11	1971	0	1979+	.78	62	2	1	0	0
Maryland	75	3	10	1975	0	1970+	2.63	60	2	1	0	1
Massachusetts	107	4	12	1958	0	1959	4.80	77	3	99	4	120
Michigan	425	16	39	1974	2	1959	2.70	246	9	226	8	39
Minnesota	453	17	34	1968	5	1972	2.00	273	10	73	3	9
Mississippi	578	21	44	1973	1	1979	4.49	311	12	314	12	66
Missouri	750	28	79	1973	6	1953	3.99	359	13	120	4	17
Montana	109	4	13	1978	0	1974+	.27	81	3	0	0	0
Nebraska	947	35	78	1975	10	1966	4.54	471	17	44	2	6
Nevada	18	1	4	1964	0	1978+	.06	17	1	0	0	0
New Hampshire	59	2	9	1963	0	1979+	2.35	53	2	0	0	0
New Jersey	43	2	8	1973	0	1978+	2.03	35	1	0	0	0
New Mexico	229	8	18	1972	0	1953	.70	172	6	3	0	0
New York	96	4	8	1978	0	1953	.72	81	3	2	0	0
North Carolina	314	12	38	1973	2	1970	2.21	197	7	22	1	4
North Dakota	444	16	52	1976	2	1961	2.33	259	10	21	1	3
Ohio	367	14	43	1973	3	1976	3.30	203	8	147	5	36
Oklahoma	1452	54	107	1957	21	1978	7.69	613	23	177	7	25
Oregon	24	1	3	1975+	0	1979+	.09	20	1	0	0	0
Pacific	1	0	1	1975	0	1979+	.52	1	0	0	0	0
Pennsylvania	201	7	23	1976	0	1959	1.64	145	5	8	0	2
Puerto Rico	9	0	2	1979+	0	1978+	.97	8	0	0	0	0
Rhode Island	1	0	1	1972	0	1979+	.31	1	0	0	0	0
South Carolina	246	9	23	1973	1	1970+	2.93	169	6	24	1	8
South Dakota	632	23	64	1965	1	1959	3.04	320	12	8	0	1
Tennessee	298	11	44	1974	1	1962	2.61	161	6	74	3	18
Texas	3192	118	232	1967	32	1953	4.42	1322	49	370	14	14
Utah	32	1	5	1970+	0	1979+	.14	25	1	0	0	0
Vermont	25	1	5	1962	0	1979+	.96	21	1	0	0	0
Virginia	156	6	22	1975	1	1963	1.42	107	4	16	1	4
Virgin Islands	2	0	1	1979+	0	1978+	5.57	2	0	0	0	0
Washington	30	1	4	1978+	0	1977+	.16	24	1	6	0	1
West Virginia	54	2	6	1974	0	1960+	.83	43	2	1	0	0
Wisconsin	471	17	33	1964	3	1953	3.11	261	10	53	2	9
Wyoming	239	9	42	1979	0	1970	.90	168	6	2	0	0
TOTAL: UNITED STATES	*19493	722	1102	1973	421	1953	2.00	†4567	169	2997	111	8

+ Also in earlier year(s).

\* Corrected for boundary-crossing tornadoes.

† Tornado Days for Country as a whole.

# Mean annual tornadoes per 10,000 square miles.

@ Number of deaths per 10,000 square miles -- 1953-79.



# NUMBER OF FUNNEL CLOUDS 1979

STATE	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANN
Alabama	2			2	2			3		2	5		16
Alaska													0
Arizona		2						1					3
Arkansas		2	3	13	12		8	3					41
California	1												1
Colorado					4	11	15	1					31
Connecticut													0
Delaware													0
District of Columbia													0
Florida	1	1		2	24	9	15	15	16	1	2		86
Georgia										3			3
Hawaii	1	1	3	1									6
Idaho				1									1
Illinois													0
Indiana						4	4	18		3			29
Iowa						2	20	1					23
Kansas				2	1	6	2	5	5	5			26
Kentucky													0
Louisiana													0
Maine													0
Maryland													0
Massachusetts													0
Michigan			2	1	1	11	2	4		1			22
Minnesota					7	50	12	18	1				88
Mississippi													0
Missouri									8				8
Montana													0
Nebraska				7	1	26	11	4	3				52
Nevada													0
New Hampshire													0
New Jersey													0
New Mexico				1	6			6					13
New York													0
North Carolina				1			3						4
North Dakota					2	11	39	11					63
Ohio													0
Oklahoma				7	14	24	7	6	1		2		61
Oregon					4								4
Pacific													0
Pennsylvania								2		3			5
Puerto Rico													0
Rhode Island	1												1
South Carolina													0
South Dakota					5				6				11
Tennessee				2				1					3
Texas		6	15	28	61	22	59	58	11	2	1		263
Utah													0
Vermont													0
Virginia													0
Virgin Islands	1												1
Washington					5								5
West Virginia						1	1	1					3
Wisconsin													0
Wyoming							5						5
United States	7	12	23	68	149	177	203	158	51	20	10	0	878

# TRACKS OF TORNADOES, 1979



# GENERAL SUMMARY OF LIGHTNING, 1959-79

Henry N. Vigansky  
National Oceanic and Atmospheric Administration  
Environmental Data and Information Service  
National Climatic Center

During the period 1959 through 1979, of the 2,210 lightning deaths reported in the United States, there were 19 incidents of three or more deaths caused by a single lightning strike. Also, there were 106 cases of six or more injuries associated with a single bolt of lightning. Fifteen percent of the fatalities occurred while people were under trees; 12 percent while boating, fishing or swimming; five percent while golfing; six percent while driving tractors, farm machinery or heavy road equipment; 26 percent of the fatalities occurred in open fields, ball fields and playgrounds; one percent while talking on telephones and 34 percent at various other and unknown locations.

Alaska and Hawaii are the only states that did not record a single fatality or injury for the entire period of record.

Some of the most unusual lightning associated deaths and injuries are described in the following paragraphs:

JULY 1959. In New York City on the 19th, lightning struck a tree killing four people and injuring four others. On the 20th, one soldier was killed and 17 others were injured by lightning at Fort Devins, Massachusetts.

JUNE 1960. At Warner Robins, Georgia, on the 25th, lightning struck a tin roofed shed located on a golf course, two people were killed and 20 injured.

APRIL 1961. Near Northboro, Massachusetts, on the 26th, a premature explosion of five pounds of dynamite caused by lightning resulting in one death and 11 injuries.

JUNE 1961. At Lake Champlain, Vermont, on the 25th, lightning struck and killed four men, while they were fishing from a boat.

JULY 1961. On the 7th, at Fort Benning, Georgia, four soldiers were killed and 15 injured as a result of a lightning strike within a group of soldiers on the rifle range. Three miles (4.8 km) north of Clinton, North Carolina, on the 12th, nine tobacco workers were struck by lightning while taking shelter in a tobacco barn from a thunderstorm. Only one person survived. On the 19th, in Cambridge, Ohio, four construction workers sought shelter from a storm under a tree and were killed when lightning struck the tree.

AUGUST 1961. At Camp A.P. Hill, Virginia, at 3:40 p.m., on the 3rd, lightning struck a field kitchen, two soldiers were killed and 10 others were injured.

JUNE 1963. In Gadsden County, Florida, on the 10th, lightning killed two and injured 21 tobacco workers as they took refuge from a storm in a tobacco barn. On the 12th, lightning struck the Livingston Manor located in Sullivan County, New York, resulting in \$100,000 damage and claiming the lives of three people and injuring eight others.

DECEMBER 1963. The crash of a Jet Airliner, killing 81 persons, at Elkton, Maryland, on the 8th, was attributed to lightning by the Civil Aeronautics Board Investigators.

MARCH 1964. At 9:30 p.m., on the 3rd, in Saint Francis County, Arkansas, lightning struck a house, the building burned rapidly and seven people perished.

JULY 1964. At Fort Jackson, South Carolina, on the 24th, at 3:00 p.m., 28 soldiers on a training exercise were injured by lightning.

JUNE 1965. In Madison County, Tennessee, on the 8th, at approximately 9:30 p.m., six small children perished in a house fire resulting from a lightning strike. On the 23rd, four men were killed and six others injured on a golf course near Butler, Pennsylvania. Lightning struck a wooden shelter under which they were standing.

MAY 1966. At 5:24 p.m., on the 31st, at the ball park in Clovis, New Mexico, lightning struck a tree injuring 10 people.

JUNE 1966. On the 5th, in Gibraltar, Michigan, eleven teenagers taking shelter from a storm under a large tree were struck by lightning. They were taken to a hospital and treated for flash burns, cuts and bruises. Some of the children were sent sprawling up to 25 feet (7.6 m) from where they were standing at the time of the lightning strike.



## GENERAL SUMMARY OF LIGHTNING

SEPTEMBER 1966. Five miles (8 km) northeast of Elfrida, Arizona, on the 1st, at 11:30 a.m., lightning struck in the midst of 35 field workers killing three and injuring 10 others.

JULY 1968. On the 1st, seventeen National Guardsmen were injured by lightning at Camp Shelby, Mississippi. Some of the men were in a chow line and some were sitting in a PX tent. A man serving food was knocked unconscious and he bled at the ears; another man was knocked off a metal chair, receiving second degree burns and split trousers. On the 18th, at Fort Polk, Louisiana, 50 military recruits received treatment for minor burns and lacerations after lightning struck the ground near where they were training.

AUGUST 1968. At about 5 p.m., on the 1st, a 16 year old boy was killed instantly, while making an emergency telephone call, when lightning struck the telephone lines near his home located 3 miles (4.8 km) east of Poteau, Oklahoma. On the 24th, lightning struck the tent poles at the Crawford County Fairgrounds, Pennsylvania, killing two people and injuring 72 others. Lightning struck in a camping area of the Baxter State Park, Maine, on the 25th. One person was killed and 28 injured.

JUNE 1969. At Fort Knox, Kentucky, the National Guard Communications Center was struck by lightning on the 20th. Two soldiers were admitted to the hospital for shock and burns and 16 others were treated for minor injuries.

JUNE 1970. On the 29th, one soldier was killed and 16 injured when struck by lightning while undergoing basic training at Fort Dix, New Jersey.

SEPTEMBER 1970. At the Gibbs Comprehensive High School, Saint Petersburg, Florida, on the 7th, a lightning bolt struck in a group of football players, killing two and injuring 22. All 38 players and four coaches were knocked off their feet.

JULY 1971. At 12:05 p.m., on the 18th, near the entrance of Black Copper Canyon, New Mexico, four cyclists were killed and two injured when lightning struck a tree in a grove where they took shelter from a storm. On the 21st at Camp Shelby, Mississippi, 13 Alabama National Guardsmen were injured when lightning struck a field radio antenna. One soldier was killed and 15 injured on the 26th, at Fort Dix, New Jersey, when they were struck by lightning while taking a refresher training course.

SEPTEMBER 1971. In the Fountain Run Area near Tompkinsville, Kentucky, on the 6th, at 3:00 p.m., four men hanging tobacco were killed instantly when lightning struck the metal roof of the barn. The lightning apparently hit the man standing near the roof and passed through the tobacco sticks to the other victims. A teenage daughter of one of the victims was standing on the truck bed being unloaded but was not hurt. A similar incident occurred on the same day near Lafayette, Tennessee. Four men working in a barn hanging tobacco were killed. Again it was reported that lightning struck the metal roof of the barn.

JULY 1972. In Appleton, Wisconsin, on the 20th, at 4:30 p.m., a lightning strike caused power failure at a paper mill permitting trichorethylene gas to escape. One person was killed and 13 injured. On the 23rd, near Solon, Ohio, lightning killed three and seriously hurt two other fishermen standing on the shore of a small lake.

AUGUST 1972. On the 8th, in Raleigh, North Carolina, five people perished in a house fire that was caused by lightning.

JULY 1973. On the 21st, at Wiggins, Mississippi, lightning struck within a baseball field filled with people. Thirty people received minor injuries and burns.

AUGUST 1973. At the Petit Jean State Park, Arkansas, on the 9th, at 5:30 p.m., 13 people took refuge from a storm in a cave-like rock formation. They were injured when lightning passed through a one-foot (.30 m) opening at the top of the formation. On the 12th, in Madison County, Illinois, 10 persons were injured when lightning struck a tree under which they were standing.

MAY 1974. On the 30th, at 1:00 p.m., in Saint Louis, Missouri, four teenage girls and one woman golfer were killed by lightning while standing under a tree. Also, one other person was injured.

JULY 1975. Near Mayo, Florida, on the 8th, three persons were killed and six injured by lightning while stringing tobacco under a tin shelter. The lightning first struck a nearby walnut tree. On the 20th, near Annandale, Virginia, 16 persons were injured by lightning while attending a picnic. One man was seriously injured but because of prompt first aid applications his life was saved. During the afternoon of the 24th, near Rochester, New York, lightning struck a tree under which 30 people sought shelter from the rain. Twelve of them were injured and one girl was killed.

AUGUST 1975. On the 3rd, at 5:00 p.m., lightning struck a tin roofed pavilion near Jamestown, New York.

## GENERAL SUMMARY OF LIGHTNING

One man was killed and 11 others were injured. Ninety people were injured by lightning on the 23rd, at a campground near Leslie, Michigan.

SEPTEMBER 1975. During the afternoon of the 30th, in Miami, Florida, a bolt of lightning struck the Columbus High School Athletic Field injuring 14 football players and three coaches. A fifteen year old boy apparently was struck directly in the chest and was critically injured. He died three days later.

JULY 1976. On the 27th at Fort Benning, Georgia, 19 soldiers were injured as lightning struck the ground near their shelter.

AUGUST 1977. In the Buck Creek area of Delaware County, Iowa, at 12:30 a.m., on the 8th, lightning struck a roof mounted citizens band antenna which started a house fire, six people perished.

SEPTEMBER 1977. On the 5th, at 2:55 p.m., in Van Wert County, Ohio, lightning struck a fence at the county fairgrounds injuring the 25 people who were leaning on the fence.

JUNE 1978. In Old Lyme, Connecticut, on the 19th, lightning struck a tree near a ball field and injured 12 softball players. During a training exercise at Camp Blanding, Florida, on the 30th, at 6:00 p.m., 27 National Guardsmen were injured by lightning.

JULY 1978. On the 26th, at 7:30 a.m., at Palo, Iowa, Nuclear Power Plant, 10 men were injured by a bolt of lightning while replacing a deteriorated pipe.

SEPTEMBER 1978. In Whitman, Massachusetts, on the 11th, a bolt of lightning struck a field where football practice was being held. The players and coaches ran for shelter, but while running a young coach was hit in the head by lightning and killed instantly. Sixteen of the players were injured.

APRIL 1979. On the 19th, at 9:45 p.m., lightning hit a Liberian Tanker while it was docked at the Sun Oil Terminal in Nederland, Texas, and 16 crewmen were injured.

JUNE 1979. At Camp Grayling, Michigan, on the 20th, at 9:00 p.m., lightning struck a mess tent injuring 45 National Guardsmen.

Additional lightning information is presented in the following tables. The National Climatic Center has developed a magnetic tape containing lightning statistics for the period 1959-1979. The tape contains the date/time (year, month, day and hour), location (state and county), number of fatalities, number of injuries and amount of property damage. A copy of this tape can be obtained by contacting the National Climatic Center, Federal Building, Asheville, North Carolina 28801.

# LIGHTNING FATALITIES, 1979

STATE ----	JAN ---	FEB ---	MAR ---	APR ---	MAY ---	JUN ---	JUL ---	AUG ---	SEP ---	OCT ---	NOV ---	DEC ---	ANN ---
ALABAMA	0	0	0	0	0	0	0	1	0	0	0	0	1
ALASKA	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIZONA	0	0	0	0	0	0	0	0	0	0	0	0	0
ARKANSAS	0	0	0	0	1	0	2	2	0	0	0	0	5
CALIFORNIA	0	0	0	0	0	0	0	0	0	0	0	0	0
COLORADO	0	0	0	0	0	2	0	1	0	0	0	0	3
CONNECTICUT	0	0	0	0	0	0	0	0	0	0	0	0	0
DELAWARE	0	0	0	0	2	0	0	0	0	0	0	0	0
DISTRICT OF COLUMBIA	0	0	0	0	0	0	0	1	0	0	0	0	1
FLORIDA	0	0	0	0	1	0	0	3	0	0	0	0	4
GEORGIA	0	0	0	0	0	1	1	0	0	0	0	0	2
HAWAII	0	0	0	0	0	0	0	0	0	0	0	0	0
IDAHO	0	0	0	0	0	0	0	0	0	0	0	0	0
ILLINOIS	0	0	0	0	0	0	0	1	0	0	0	0	1
INDIANA	0	0	0	0	0	0	0	0	0	0	0	0	0
IOWA	0	0	0	0	0	0	0	0	0	0	0	0	0
KANSAS	0	0	0	0	0	0	0	0	0	0	0	0	0
KENTUCKY	0	0	0	0	0	0	0	0	0	0	0	0	0
LOUISIANA	0	0	0	1	0	0	1	0	2	0	0	0	4
MAINE	0	0	0	0	0	0	0	0	0	2	0	0	2
MARYLAND	0	0	0	0	0	0	1	0	0	0	0	0	1
MASSACHUSETTS	0	0	0	0	1	0	0	2	0	0	0	0	3
MICHIGAN	0	0	0	0	0	1	0	1	0	0	0	0	2
MINNESOTA	0	0	0	0	0	0	0	1	0	0	0	0	1
MISSISSIPPI	0	0	0	0	0	0	1	1	0	0	0	0	2
MISSOURI	0	0	0	0	0	0	0	0	0	0	0	0	0
MONTANA	0	0	0	0	0	0	0	0	0	0	0	0	0
NEBRASKA	0	0	0	0	0	0	0	0	0	0	0	0	0
NEVADA	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW HAMPSHIRE	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW JERSEY	0	0	0	0	1	0	2	0	0	0	0	0	3
NEW MEXICO	0	0	0	0	0	0	2	0	0	0	0	0	2
NEW YORK	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH CAROLINA	0	0	0	0	2	0	0	1	0	0	0	0	3
NORTH DAKOTA	0	0	0	0	0	0	0	0	0	0	0	0	0
OHIO	0	0	0	0	0	0	0	0	0	0	0	0	0
OKLAHOMA	0	0	0	0	1	0	1	0	0	1	1	0	4
OREGON	0	0	0	0	0	0	0	0	1	0	0	0	1
PENNSYLVANIA	0	0	0	0	0	0	0	0	0	0	0	0	0
PUERTO RICO	0	0	0	0	0	0	0	0	0	0	0	0	0
RHODE ISLAND	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH CAROLINA	0	0	0	0	2	0	1	1	0	0	0	0	4
SOUTH DAKOTA	0	0	0	0	0	0	1	0	1	0	0	0	2
TENNESSEE	0	0	0	0	1	0	1	0	0	0	0	0	2
TEXAS	0	0	0	2	1	0	3	0	0	0	1	0	7
UTAH	0	0	0	0	0	0	0	0	0	0	0	0	0
VERMONT	0	0	0	0	0	0	0	0	0	0	0	0	0
VIRGINIA	0	0	0	0	0	0	0	0	0	0	0	0	0
WASHINGTON	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST VIRGINIA	0	0	0	0	0	0	0	0	0	0	0	0	0
WISCONSIN	0	0	0	0	0	0	2	0	0	0	0	0	2
WYOMING	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	0	0	0	3	11	4	20	16	4	3	2	0	63



# LIGHTNING INJURIES, 1979

STATE ----	JAN ---	FEB ---	MAR ---	APR ---	MAY ---	JUN ---	JUL ---	AUG ---	SEP ---	OCT ---	NOV ---	DEC ---	ANN ---
ALABAMA	0	0	0	1	0	0	0	7	0	0	0	0	8
ALASKA	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIZONA	0	0	0	0	2	0	2	0	0	0	0	0	4
ARKANSAS	0	1	0	0	1	0	1	2	0	0	0	0	5
CALIFORNIA	0	0	0	0	0	0	0	0	0	0	0	0	0
COLORADO	0	0	0	0	5	0	2	2	0	0	0	0	9
CONNECTICUT	0	0	0	0	0	0	0	0	0	0	0	0	0
DELAWARE	0	0	0	0	0	0	0	0	0	0	0	0	0
DISTRICT OF COLUMBIA	0	0	0	0	0	0	0	1	0	0	0	0	1
FLORIDA	0	0	0	0	1	0	10	8	6	0	0	0	25
GEORGIA	0	0	0	0	0	0	7	4	0	1	0	0	12
HAWAII	0	0	0	0	0	0	0	0	0	0	0	0	0
IDAHO	0	0	0	0	0	0	0	0	0	0	0	0	0
ILLINOIS	0	0	0	0	0	0	9	2	0	0	0	0	11
INDIANA	0	0	0	0	0	0	3	4	0	0	0	0	7
IOWA	0	0	0	0	0	0	0	3	0	0	0	0	3
KANSAS	0	0	0	0	0	0	0	0	0	0	0	0	0
KENTUCKY	0	0	0	0	0	1	0	0	0	0	0	0	1
LOUISIANA	0	0	1	0	0	0	0	0	2	0	0	0	3
MAINE	0	0	0	0	0	0	0	0	0	0	0	0	0
MARYLAND	0	0	0	0	0	0	3	1	0	0	0	0	4
MASSACHUSETTS	0	0	1	0	0	0	2	4	0	0	0	0	7
MICHIGAN	0	0	0	0	1	47	0	0	0	0	0	0	48
MINNESOTA	0	0	0	0	0	0	0	0	0	0	0	0	0
MISSISSIPPI	0	1	1	0	1	0	6	1	0	0	0	0	10
MISSOURI	0	0	0	3	0	0	0	1	0	0	0	0	4
MONTANA	0	0	0	0	0	0	0	0	0	0	0	0	0
NEBRASKA	0	0	0	0	2	0	0	0	1	0	0	0	3
NEVADA	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW HAMPSHIRE	0	0	0	0	0	0	0	0	0	0	0	0	0
NEW JERSEY	0	0	0	0	1	0	1	1	0	0	0	0	3
NEW MEXICO	0	0	0	0	0	1	0	1	0	0	0	0	2
NEW YORK	0	0	0	0	0	0	0	0	0	0	0	0	0
NORTH CAROLINA	0	0	0	2	2	6	3	0	0	1	0	0	14
NORTH DAKOTA	0	0	0	0	0	0	0	0	0	0	0	0	0
OHIO	0	0	0	0	0	7	0	0	0	0	0	0	7
OKLAHOMA	0	0	0	0	2	6	4	1	0	0	1	0	14
OREGON	0	0	0	0	0	0	0	0	0	0	0	0	0
PENNSYLVANIA	0	0	0	0	0	3	0	2	0	0	0	0	5
PUERTO RICO	0	0	0	0	0	0	0	0	0	0	0	0	0
RHODE ISLAND	0	0	0	0	0	1	0	0	0	0	0	0	1
SOUTH CAROLINA	0	0	0	0	4	0	1	0	0	0	0	0	5
SOUTH DAKOTA	0	0	0	0	0	0	0	0	0	0	0	0	0
TENNESSEE	0	0	0	1	0	0	0	1	0	0	0	0	2
TEXAS	0	0	1	19	10	0	1	0	0	0	1	0	32
UTAH	0	0	0	0	0	0	0	0	0	0	0	0	0
VERMONT	0	0	0	0	0	0	0	0	0	0	0	0	0
VIRGINIA	0	0	0	0	0	0	0	1	0	0	0	0	1
WASHINGTON	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST VIRGINIA	0	0	0	0	0	0	0	2	0	0	0	0	2
WISCONSIN	0	0	0	0	0	1	0	0	0	0	0	0	1
WYOMING	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	2	4	26	32	73	55	49	9	2	2	0	254

# TOTAL LIGHTNING FATALITIES BY STATE FOR PERIOD, 1959-79

STATE ----	JAN ---	FEB ---	MAR ---	APR ---	MAY ---	JUN ---	JUL ---	AUG ---	SEP ---	OCT ---	NOV ---	DEC ---	ANN ---
ALABAMA	0	0	2	2	4	15	18	11	1	1	0	0	54
ALASKA	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIZONA	0	0	0	0	1	1	12	11	6	0	0	0	31
ARKANSAS	0	0	8	0	10	26	19	15	3	0	0	0	81
CALIFORNIA	0	0	0	0	0	2	1	5	3	0	0	0	11
COLORADO	0	0	0	0	6	8	26	11	0	1	0	0	52
CONNECTICUT	0	0	0	0	0	3	5	3	0	0	0	0	11
DELAWARE	0	0	0	0	0	1	3	3	0	0	0	0	7
DISTRICT OF COLUMBIA	0	0	0	0	0	1	1	1	0	0	0	0	3
FLORIDA	0	0	3	3	17	56	62	50	28	2	1	1	223
GEORGIA	0	0	2	3	4	15	19	8	2	1	0	0	54
HAWAII	0	0	0	0	0	0	0	0	0	0	0	0	0
IDAHO	0	0	0	1	1	5	5	5	1	0	0	0	18
ILLINOIS	0	0	0	3	7	18	12	10	7	2	0	0	59
INDIANA	0	0	1	2	6	17	15	10	4	2	0	0	57
IOWA	0	0	1	3	9	14	6	11	4	4	0	0	52
KANSAS	0	0	0	3	8	5	10	6	4	1	1	0	38
KENTUCKY	1	0	0	2	5	15	13	7	10	0	0	0	53
LOUISIANA	0	0	1	5	6	16	28	12	10	0	1	1	80
MAINE	0	0	0	0	0	3	3	6	0	3	0	0	15
MARYLAND	0	0	0	0	0	5	5	6	1	0	0	61	98
MASSACHUSETTS	0	0	0	1	3	2	3	7	1	0	0	0	17
MICHIGAN	0	0	0	0	6	16	14	15	3	0	0	0	54
MINNESOTA	0	0	0	2	2	6	4	10	8	1	0	0	33
MISSISSIPPI	1	0	4	0	9	7	17	15	4	0	0	0	57
MISSOURI	0	0	5	4	17	17	10	7	3	1	0	0	64
MONTANA	0	0	0	0	2	6	6	1	0	0	0	0	15
NEBRASKA	0	0	0	1	3	12	6	5	4	0	0	0	31
NEVADA	0	0	0	0	0	1	0	2	0	0	0	0	3
NEW HAMPSHIRE	0	0	0	0	0	3	1	0	0	0	0	0	4
NEW JERSEY	0	0	0	1	2	5	16	14	3	0	0	0	41
NEW MEXICO	0	0	0	1	3	8	17	20	3	0	0	0	52
NEW YORK	0	0	0	0	5	18	38	21	4	2	0	0	88
NORTH CAROLINA	0	1	3	2	18	22	36	29	2	0	0	0	113
NORTH DAKOTA	0	0	0	0	0	4	3	3	0	0	0	0	10
OHIO	0	0	0	3	6	15	33	11	7	2	1	0	78
OKLAHOMA	0	1	1	9	11	9	7	13	11	2	1	0	65
OREGON	0	0	0	0	1	0	0	1	2	0	0	0	4
PENNSYLVANIA	0	1	0	0	7	24	26	24	6	1	0	0	89
PUERTO RICO	0	0	0	0	0	3	2	4	5	3	0	0	17
RHODE ISLAND	0	0	0	0	0	0	1	0	2	0	0	0	3
SOUTH CAROLINA	0	0	1	0	5	9	23	8	3	0	0	0	49
SOUTH DAKOTA	0	0	0	0	2	1	4	0	3	2	0	0	12
TENNESSEE	0	1	1	4	12	29	12	11	11	2	2	0	85
TEXAS	0	0	0	9	20	10	35	21	11	4	1	0	111
UTAH	0	0	0	0	0	5	1	3	2	0	0	0	11
VERMONT	0	0	0	0	0	4	5	3	0	0	0	0	12
VIRGINIA	0	0	0	0	9	4	7	8	2	0	0	0	30
WASHINGTON	0	0	0	0	0	1	0	0	0	0	0	0	1
WEST VIRGINIA	0	0	0	0	4	2	6	2	1	0	0	0	15
WISCONSIN	0	0	0	0	0	8	11	7	2	1	0	1	30
WYOMING	0	0	0	0	2	3	7	5	2	0	0	0	19
TOTAL	2	4	33	64	233	480	614	461	189	38	8	84	2210

# TOTAL LIGHTNING INJURIES BY STATE FOR PERIOD, 1959-79

STATE ----	JAN ---	FEB ---	MAR ---	APR ---	MAY ---	JUN ---	JUL ---	AUG ---	SEP ---	OCT ---	NOV ---	DEC ---	ANN ---
ALABAMA	6	1	6	2	1	10	40	27	0	2	0	0	95
ALASKA	0	0	0	0	0	0	0	0	0	0	0	0	0
ARIZONA	2	0	0	0	6	1	22	15	12	0	0	0	58
ARKANSAS	1	2	2	9	22	12	28	45	9	0	0	0	130
CALIFORNIA	0	0	0	0	0	0	6	7	1	0	0	1	15
COLORADO	0	0	0	0	8	24	39	35	4	0	0	0	110
CONNECTICUT	0	0	0	0	3	14	10	10	4	0	0	0	41
DELAWARE	0	0	0	0	1	8	0	1	2	0	0	0	12
DISTRICT OF COLUMBIA	0	0	0	0	0	4	1	1	0	0	1	0	7
FLORIDA	0	1	11	2	19	136	142	135	107	12	0	1	566
GEORGIA	0	0	2	2	12	37	78	29	3	5	0	0	168
HAWAII	0	0	0	0	0	0	0	0	0	0	0	0	0
IDAH0	0	0	0	1	6	15	12	15	4	1	0	0	54
ILLINOIS	0	0	0	2	12	34	22	25	9	1	0	0	105
INDIANA	0	0	0	4	16	30	26	16	1	0	0	0	93
IOWA	0	0	1	5	21	39	32	15	16	2	1	0	132
KANSAS	0	0	4	9	10	18	35	18	20	4	1	0	119
KENTUCKY	0	0	0	2	15	45	42	13	10	1	0	0	128
LOUISIANA	1	0	6	2	12	8	81	32	13	0	1	1	157
MAINE	0	0	0	0	3	5	17	43	0	0	1	0	69
MARYLAND	0	0	0	0	14	14	22	13	3	0	0	0	66
MASSACHUSETTS	0	0	1	11	8	30	89	58	21	4	2	1	225
MICHIGAN	0	0	1	7	31	112	55	174	18	6	0	0	404
MINNESOTA	0	0	0	0	6	17	11	13	5	3	0	0	55
MISSISSIPPI	1	2	3	2	10	8	90	22	6	1	1	1	147
MISSOURI	0	1	1	8	12	16	4	13	3	2	0	0	60
MONTANA	0	0	0	0	5	8	10	6	0	0	0	0	29
NEBRASKA	0	0	0	2	9	6	7	9	5	0	0	0	38
NEVADA	0	0	0	0	0	0	0	2	0	0	0	0	2
NEW HAMPSHIRE	0	0	0	0	2	17	3	0	2	0	0	0	24
NEW JERSEY	0	0	0	0	3	11	48	18	14	0	0	0	94
NEW MEXICO	0	0	0	1	17	8	28	14	6	0	0	0	74
NEW YORK	0	0	0	0	4	42	60	76	16	3	1	0	202
NORTH CAROLINA	0	2	8	12	37	48	66	66	16	2	1	0	258
NORTH DAKOTA	0	0	0	0	1	0	0	3	2	0	0	0	6
OHIO	0	0	0	1	13	33	30	40	40	3	0	0	160
OKLAHOMA	0	1	3	12	24	34	30	30	16	2	5	1	158
OREGON	0	0	0	0	2	2	0	9	3	0	0	0	16
PENNSYLVANIA	0	5	0	0	9	59	60	119	10	2	0	0	264
PUERTO RICO	0	0	0	0	0	0	1	0	2	1	0	0	4
RHODE ISLAND	0	2	0	0	1	5	3	6	2	0	1	0	20
SOUTH CAROLINA	0	0	0	1	15	5	65	12	13	0	0	0	111
SOUTH DAKOTA	0	0	0	1	2	12	4	5	1	0	0	0	25
TENNESSEE	0	1	4	2	22	27	54	25	16	4	0	0	155
TEXAS	0	1	3	26	35	30	28	33	18	5	2	0	181
UTAH	0	0	0	0	1	18	1	6	4	0	0	0	30
VERMONT	0	0	0	0	0	3	10	1	0	0	0	0	14
VIRGINIA	0	0	0	1	4	10	32	21	0	0	0	0	68
WASHINGTON	0	0	0	0	4	1	5	7	0	0	0	0	17
WEST VIRGINIA	0	0	0	0	0	2	18	5	1	1	0	0	27
WISCONSIN	0	1	2	2	4	19	27	6	6	1	1	0	71
WYOMING	0	0	0	0	4	32	16	20	6	0	0	0	78
TOTAL	11	20	58	129	466	1069	1510	1316	470	68	19	6	5142



# LIGHTNING FATALITIES AND INJURIES BY YEAR, 1959-79

## LIGHTNING FATALITIES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
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1959	1	0	1	4	18	25	50	39	13	7	0	0	158
1960	0	0	1	5	7	33	25	17	9	0	0	0	97
1961	0	0	1	2	9	23	47	20	10	1	3	0	113
1962	0	0	3	5	27	20	26	28	9	1	0	0	120
1963	0	0	4	3	11	37	42	20	10	2	0	81	210
1964	0	0	4	6	15	21	29	19	7	1	1	0	108
1965	0	0	2	4	12	34	39	28	4	2	0	0	125
1966	0	0	1	1	8	15	21	16	11	3	0	0	76
1967	1	0	1	2	3	26	21	14	1	2	1	1	73
1968	0	0	0	1	5	24	30	29	9	3	1	1	103
1969	0	0	1	5	13	17	27	13	14	3	0	0	93
1970	0	0	0	1	17	25	27	19	21	1	0	0	111
1971	0	0	2	1	12	27	33	19	19	0	0	0	113
1972	0	0	1	1	5	21	31	28	3	1	0	0	91
1973	0	1	2	3	10	24	31	18	13	2	1	0	105
1974	0	2	0	7	12	21	28	24	6	0	2	0	102
1975	0	1	3	3	11	19	28	18	5	2	0	0	91
1976	0	0	0	1	9	19	19	19	3	2	0	0	72
1977	0	0	0	4	9	19	16	35	14	1	0	0	98
1978	0	0	1	1	9	26	24	22	3	1	0	1	88
1979	0	0	0	3	11	4	20	16	4	3	2	0	63
TOTAL	2	4	33	64	233	480	614	461	189	38	8	84	2210
AVERAGE	0	0	2	3	11	23	29	22	9	2	0	4	105

## LIGHTNING INJURIES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
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1959	0	0	0	5	27	52	110	103	23	3	1	1	325
1960	0	0	2	11	12	70	28	50	16	9	4	0	202
1961	0	0	7	14	15	49	83	50	31	5	1	1	256
1962	0	0	3	5	39	38	90	49	12	6	0	0	242
1963	7	0	0	6	14	64	55	44	18	1	0	0	209
1964	0	0	10	15	14	38	99	53	8	1	1	0	239
1965	3	2	2	4	26	42	59	59	19	1	0	0	217
1966	0	2	1	2	37	39	42	44	15	1	0	0	183
1967	0	0	0	4	7	35	59	33	4	2	0	1	145
1968	0	0	4	2	16	52	117	155	14	9	1	0	370
1969	0	0	0	4	19	75	39	23	12	0	0	1	173
1970	0	0	1	5	40	40	82	43	43	4	1	0	259
1971	0	1	0	1	24	71	79	54	22	1	1	0	254
1972	0	0	8	6	12	24	72	54	24	2	1	0	203
1973	0	0	10	2	20	23	74	59	29	9	2	0	228
1974	1	9	1	3	12	27	56	51	12	1	0	0	173
1975	0	3	0	1	30	60	107	154	42	1	0	1	399
1976	0	1	0	7	16	39	73	68	13	1	0	1	219
1977	0	0	0	3	35	58	58	67	62	4	4	0	291
1978	0	0	5	3	19	100	73	54	42	5	0	0	301
1979	0	2	4	26	32	73	55	49	9	2	2	0	254
TOTAL	11	20	58	129	466	1069	1510	1316	470	68	19	5	5142
AVERAGE	1	1	3	5	22	51	72	63	22	3	1	0	245

## HAILSTORMS LOSSES FOR PAST YEARS

Year	Property (exclusive of crops)	Crops	Total	Year	Property (exclusive of crops)	Crops	Total
1933	-	-	7	1959	6	7	7
1934	-	-	7	1960	7	8	8
1935	-	-	7	1961	8	8	8
1936	6	7	7	1962	9	8	9
1937	6	7	7	1963	8	8	8
1938	6	7	7	1964	8	8	8
1939	5	6	6	1965	8	8	8
1940	6	7	7	1966	8	8	8
1941	6	7	7	1967	8	8	8
1942	6	7	7	1968	8	8	8
1943	6	7	7	1969	8	8	8
1944	7	7	8	1970	7	8	8
1945	6	7	7	1971	8	8	8
1946	7	7	7	1972	7	8	8
1947	6	8	8	1973	7	7	8
1948	7	8	8	1974	7	7	8
1949	7	7	7	1975	7	8	8
1950	7	7	7	1976	7	8	8
1951	7	7	8	1977	7	8	8
1952	7	7	7	1978	8	8	8
1953	7	7	7	1979	7	8	8
1954	7	8	8				
1955	7	7	8				
1956	7	8	8				
1957	7	8	8				
1958	7	8	8				

\* Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50	4 \$5,000 to \$50,000	7 \$5 million to \$50 million
2 \$50 to \$500	5 \$50,000 to \$500,000	8 \$50 million to \$500 million
3 \$500 to \$5,000	6 \$500,000 to \$5 million	9 \$500 million to \$5 billion.

NOTE.--The above estimated losses are based on values at time of occurrence.

## WINDSTORM LOSSES PAST YEARS

(Windstorms other than tornadoes)

Year	Total loss of life	Total property loss	Year	Total loss of life	Total property loss
1916	65	7	1951	289	8
1917	25	6	1952	137	8
1918	79	7	1953	118	8
1919	344	7	1954	292	9
1920	42	6	1955	301	8
1921	65	7	1956	196	8
1922	133	7	1957	553	8
1923	68	7	1958	129	8
1924	78	7	1959	145	7
1925	88	7	1960	85	8
1926	357	8	1961	64	8
1927	64	7	1962	124	9
1928	1,947	8	1963	54	9
1929	46	7	1964	64	9
1930	49	7	1965	107	9
1931	17	7	1966	74	8
1932	306	7	1967	48	8
1933	156	8	1968	49	8
1934	109	7	1969	194	9
1935	461	7	1970	64	8
1936	121	7	1971	76	8
1937	43	7	1972	103	8
1938	630	8	1973	80	8
1939	60	6	1974	30	9
1940	251	7	1975	103	8
1941	43	7	1976	127	8
1942	68	7	1977	65	8
1943	61	7	1978	71	8
1944	448	8		51	9
1945	85	7			
1946	70	7			
1947	117	8			
1948	52	8			
1949	102	8			
1950	210	8			
				Total 10,563	

† Storm damages are placed in categories varying from 1 to 9 as follows:

1 Less than \$50	4 \$5,000 to \$50,000	7 \$5 million to \$50 million
2 \$50 to \$500	5 \$50,000 to \$500,000	8 \$50 million to \$500 million
3 \$500 to \$5,000	6 \$500,000 to \$5 million	9 \$500 million to \$5 billion.

NOTE.--The above estimated losses are based on values at time of occurrence.

# NORTH ATLANTIC TROPICAL CYCLONES, 1979

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National Hurricane Center, NOAA  
Miami, Fla.

The 1979 tropical cyclone season showed some signs of returning to what is considered normal; that is, lower latitude origins and tracks, more U. S. landfalls, and more intense hurricanes striking land areas in the western North Atlantic. There were eight named storms, five of which became hurricanes, and one subtropical storm this season. The most recent 30-yr average is 10 named storms and 6 hurricanes, so this past year continues the generally below-normal activity of the recent decade. This was the tenth consecutive year that the number of hurricanes has been average or below. Figure 1 gives the tracks of the 1979 named tropical cyclones and the subtropical cyclone, Table 1 gives a statistical summary, and Tables 2 and 3 show past years' data.

Even though there were fewer storms in 1979 than in 1978, the number of hurricane hours (each hour that a storm has windspeeds greater than 63 kn) reached 522. This was up markedly from last year's 307 and close to the 30-yr average of 620 hurricane hours. As one would expect, the large number of storms affecting the Gulf of Mexico, eastern Caribbean Sea, and the Atlantic seaboard also resulted in a larger number of ships reporting gale-force winds. There were 95 ships which reported winds of gale force on 144 observations received and plotted at the National Hurricane Center during the storms. Oddly enough, the only ship report of hurricane-force winds came from the KAPUS-KASING as the subtropical storm crossed the North Atlantic shipping lanes on October 24.

Three ships had the misfortune to encounter more than one tropical cyclone this year. The American ship TEXACO WISCONSIN encountered Bob and David, the American ship EL PASO ARZEW encountered David and Gloria, and the Dutch ship WINSUM encountered Frederic and Gloria. However, dubious top honors go to the American ship WALTER RICE, which encountered David, Frederic, and Henri while traveling down the U.S. East Coast and through the Gulf of Mexico. Twenty-two ships reported gale force winds more than once, with eight reporting gales more than three times, attesting especially to the large size of David and Frederic. Only the short-lived and minimal tropical storm Elena had no gale reports.

The lull in landfalling U.S. and eastern Caribbean hurricanes ended this year. Bob affected New Orleans, David the Miami-Fort Lauderdale area northward to Savannah, and Frederic the Mobile, AL-Pascagoula, MS, area. In addition, David devastated the Dominican Republic capital of Santo Domingo and seriously affected Dominica. The five landfalls of storms and hurricanes in the United States with three hurricanes and one major hurricane were near or

above the long-term averages of three, two, and one, respectively. Nevertheless, the decade of the seventies had both the lowest number of landfalling hurricanes, 12, and landfalling major hurricanes, 4, in this century. The previous lowest totals were 14 and 5, respectively.

The outstanding features of the 1979 hurricane season were:

(1) Hurricane David, the most intense hurricane of this century in the eastern Caribbean Sea, which devastated the island of Dominica, killing 56 and leaving 60,000 of the 80,000 residents homeless, and then killing an estimated 1,200 in the Dominican Republic with that country's government estimating damage in excess of \$1 billion and 200,000 homeless;

(2) Hurricane Frederic, which was the first hurricane to strike Mobile, AL, since 1926, caused an estimated \$2.3 billion damage in the United States;

(3) A reported 42 in of rain in 24 hr near Alvin, TX, during Claudette, which if confirmed would be a U.S. 24-hr rainfall record; and

(4) The greatest combined damage total in the United States in 1 yr from tropical cyclones.

## TROPICAL STORM ANA, JUNE 19-23

Mariners were probably surprised to hear advisories being issued on a tropical cyclone east of the Lesser Antilles in June. Ana was the first June storm to form east of the Lesser Antilles since 1933 and only the second during the past 100 yr. Ana developed a few days earlier than the 1933 storm, which developed somewhat farther to the east of the islands.

The first evidence of something unusual came on the 19th at 0000 when the Mexican ship DRAGAMINAS reported southwest winds of 35 kn near 7.2°N, 42.6°W. Satellite pictures the next morning indicated that a depression was forming near 10°N, 45°W. Postanalysis showed that Ana reached tropical-storm strength about 0000 on June 22. However, the storm was not named until 1600, when the first reconnaissance flight indicated winds of 50 kn. Gale warnings were then issued for the islands from Martinique to Guadeloupe because of the proximity of the storm. Strong westerly winds at high levels separated the convective energy source from the low-level circulation center, however, and Ana weakened to a minimal tropical storm before passing through the islands during the evening of June 22. Further weakening took place, and Ana degenerated into a tropical wave in the eastern Caribbean Sea early



## NORTH ATLANTIC TROPICAL CYCLONES

on the 24th.

There were no reports of gale-force winds or heavy rains in the islands and no deaths or damage.

### HURRICANE BOB, July 9-16

Bob developed from one of the many disturbances that originate over Africa each year. He was the first of five named storms in the Gulf of Mexico during 1979. A depression formed in the southwest Gulf of Mexico on July 9 and began moving northeastward in advance of a low-pressure trough approaching from the west. Reconnaissance reports indicated the depression had reached tropical-storm strength the next morning, and gale warnings were issued at 1600 for the central Gulf Coast from Vermilion Bay, LA, to Biloxi, MS. Bob was upgraded to a hurricane at 2200 on July 10 as winds reached 65 kn. He was the first July hurricane in the Gulf since 1959.

The storm's center crossed the Louisiana coast near Grand Isle about daybreak on the 11th, passing just west of New Orleans later that morning, and weakening rapidly after crossing Lake Pontchartrain. The remnants of Bob produced some flooding from locally heavy rains in southern Indiana and Ohio and West Virginia.

Along the coast the statistics associated with Bob were typical of a minimal hurricane. The maximum sustained winds of 65 kn and minimum pressure of 986 mb occurred about the time of landfall. Highest measured winds on the coast were 45 to 55 kn with a few gusts to 65 kn. Tides were generally 3 to 5 ft above normal from the landfall point eastward to Mobile Bay. Rainfall totals were between 3 and 4 in. Eight tornadoes were reported but only one, in Biloxi, MS, produced significant damage. There was one death in Louisiana. Coastal damage was less than \$5 million, but it exceeded \$15 million in the Indiana floods.

### TROPICAL STORM CLAUDETTE, JULY 16-29

Claudette was a tropical storm for two brief periods separated by a 5-day interval during which she weakened to a disorganized wave. A surface circulation was first evident on July 16 about 450 mi east of the Leeward Islands. A reconnaissance aircraft indicated that winds had reached 45 kn the next morning, and the depression was upgraded to tropical storm Claudette at 1600, even though the minimum sea-level pressure was 1011 mb. As had been the case with Ana, gale warnings were required in the first advisory because of the proximity of the storm to the islands, this time for the Leeward Islands, the Virgin Islands, and Puerto Rico. This was the third consecutive storm in which gale warnings were issued in the first advisory. Once again, however, strong high-level westerly winds caused Claudette to weaken to a depression over Puerto Rico and to a tropical wave over Hispaniola. Some flooding resulted from 7 to

8 in of rain over Guadeloupe, and amounts exceeding 9 in. in southern Puerto Rico caused one death and an estimated \$750,000 damage from river floods.

Part two of tropical storm Claudette began as the tropical wave remnants moved into the southeastern Gulf of Mexico on the morning of July 21. A depression formed later that day and reached tropical-storm strength on the 23rd. Once again, gale warnings were issued with the first advisory at 1300 from Biloxi, MS, to Freeport, TX. The center of Claudette was poorly defined and elongated in a north-south direction. The storm had been moving steadily towards the northwest, and late on the 23d it appeared that it had weakened to a depression again. Gale warnings were discontinued. However, a dominant center formed to the north and began drifting northward shortly before daybreak on the 24th. Offshore oil rigs began reporting gale-force winds, and gale warnings were issued once again at 1430, this time from Grand Isle, LA, to Galveston, TX. The center crossed the coast near the Texas-Louisiana border about 1800 and was expected to continue northward and spread heavy rains through the lower Mississippi Valley. The development of a high-pressure system aloft to the north of the center blocked Claudette and caused it to turn slowly toward the west, describing a tight loop over extreme southeastern Texas during the next 24 hr, before finally moving off to the north. Claudette did not weaken because of the proximity of the center to the water, and offshore oil rigs reported winds of gale force for 30 hr after the center moved inland. Claudette's lowest central pressure of 997 mb occurred at Beaumont, TX, after the center had moved inland. Maximum sustained winds of 45 kn were observed by reconnaissance aircraft east of the Leeward Islands and in the northwestern Gulf of Mexico.

In spite of her disorganized life, Claudette will be remembered along coastal southeastern Texas for the torrential rains which occurred while the center was making a loop in that area. An unofficial report of 42 in of rain in 24 hr from an observer near Alvin, TX, will be a U.S. 24-hr rainfall record if verified. There were also several reports of storm rainfall exceeding 30 in from Alvin, Freeport, and Sargent, TX, making Claudette one of the wettest tropical cyclones ever to affect the United States.

The highest winds on the coast were estimated to be 45 to 55 kn in gusts at Cameron, LA, around the time of landfall. Tides of 2 to 4 ft above normal caused minor damage along the Louisiana coast. There was one death in Texas attributed to Claudette, and damage from the flooding produced by her heavy rains will likely exceed \$400 million.

### HURRICANE DAVID, AUGUST 25-SEPTEMBER 7

David was the most intense hurricane of this century to affect the islands of the eastern

## NORTH ATLANTIC TROPICAL CYCLONES

Caribbean Sea. The central pressure of 924 mb while south of Puerto Rico on August 30 is the lowest measured central pressure in that region. David may be regarded as a typical Cape Verde hurricane. Characteristics of this type of hurricane are:

(1) Attaining hurricane intensity well east of the Lesser Antilles.

(2) Following a parabolic track around the periphery of the Azores-Bermuda High and frequently affecting the Lesser Antilles, the Greater Antilles, and the United States;

(3) Maintaining major hurricane intensity for the duration of the hurricane, unless weakened by landfall; and

(4) Expanding in size with movement to higher latitudes to become both large and intense before reaching the United States.

In David's case, this trajectory resulted in an impact on a large number of people both on land and at sea. Hurricane warnings were posted in advance of the center for most of the Lesser Antilles, Puerto Rico, Hispaniola, the Bahamas, and from the middle Florida Keys northward to southern North Carolina. Gale warnings were extended ahead of the inland storm from North Carolina northward to Eastport, ME. Historically, there have been few storms whose effects were so widespread.

While many ships were affected by David's 2-week journey, the Liberian ROBERTSBANK and the British CAUSEWAY had the dubious distinction of accompanying the developing David from the African coast to the Leeward Islands. The ships frequently reported easterly winds of 30 kn and 8-ft seas, but they did not report winds of gale force until the strengthening David had reached the islands. David had 210 hurricane hours, mostly at sea, and accounted for 68 gale-force observations or about half of the total for 1979.

David was the most intense hurricane of the season. Maximum strength of 150 kn and minimum pressure of 924 mb were reached south of Puerto Rico on August 30, but there was little difference in strength when David struck Dominica and Santo Domingo. He was the strongest hurricane at Dominica since 1834 and at Santo Domingo since 1930. David was not a major hurricane when it struck the United States. The landfall pressure of 972 mb just north of Palm Beach, FL, around midday on September 3 and estimated winds of 85 kn changed little before the second landfall near Savannah Beach, GA, approximately 24 hr later. Savannah reported a minimum pressure of 970 mb. David was the first hurricane to strike the Cape Canaveral, FL, area directly since 1926. Cape Canaveral was tied with Mobile, AL, for having gone the longest of any location south of Cape Hatteras, NC, without a hurricane. Even though the center of David stayed inland after moving

into Georgia, the proximity of the track to the coast produced gale-force winds well out to sea along the Atlantic seaboard and affected a large number of ships.

The death toll in Dominica was 56, and 60,000 of the 80,000 residents were left homeless. In Puerto Rico there were seven deaths. The Dominican Republic government estimated their death toll in excess of 1,200 with damage over \$1 billion U.S. dollars. In the United States there were 5 deaths directly attributed to David with about 10 more indirect deaths. Damage in the United States was not great at any particular location, but the cumulative total caused by winds, tides, floods, and tornadoes over the large area affected will likely exceed \$300 million.

### TROPICAL STORM ELENA AUGUST 29-SEPTEMBER 1

Elena was named a tropical storm at the same time as Frederic, which was the most noteworthy aspect of the storm. A depression formed in the central Gulf of Mexico on August 29 and reached minimal tropical-storm strength about 24 hr later during the afternoon of the 30th. For the fourth time out of the first five named storms, the first advisory on a storm had gale warnings--this time for Port O'Connor, TX, to Morgan City, LA. Little change in strength occurred before landfall on the central Texas coast during the afternoon of September 1, and the storm lost its identity entirely less than 12 hr after landfall.

Maximum sustained winds associated with Elena were 35 kn, and the minimum pressure of 1004 mb occurred during the evening of the 30th. The highest wind reported on land was a 40-kn gust at Galveston, TX, on the evening of September 1. Highest tides were about 3 ft above mean sea level at Galveston and Baytown, TX. The only heavy rain of consequence fell on downtown Houston, which recorded 4.6 in, and Beaumont, TX, which had 3 in. Two persons drowned in Houston from floods caused by the heavy rains, and three crewmen were killed on the CHEVRON HAWAII, when it was struck by lightning and caught fire while thunderstorms associated with Elena were in the vicinity. Except for the ship, damage along the coast was not great.

### HURRICANE FREDERIC AUGUST 29-SEPTEMBER 14

The similarity of the initial development of Frederic to that of David caused much apprehension in the eastern Caribbean Sea area. It appeared that a second Cape Verde hurricane would shortly move through that area even as David was still wreaking havoc. However, the very strength of David caused the weakening of Frederic as the warm outflowing air aloft from David descended onto Frederic and stifled his development. As the weakening Frederic approached, gale warnings were issued for the Leeward Islands, Virgin Islands, Puerto Rico, most of Hispaniola, and the southeast



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Bahamas, Turks, and Caicos Islands. The main consequence of Frederic in the islands of the eastern Caribbean Sea was heavy rains, especially over the Dominican Republic. However, seven deaths were reported from St. Maarten when a fishing boat sank.

Once Frederic regained strength in the Gulf of Mexico, earlier apprehension during the initial development became well-founded. The presence of David to the east just a week earlier and of Frederic over Cuba left few people unaware of the threat from Frederic. Hurricane warnings went into effect from Grand Isle, LA, to Panama City, FL, at 0230 September 11 with gale warnings east of Panama City to Cedar Key, FL. It didn't take much urging for people to evacuate early the next day. Of the 41 gale-force observations received at the National Hurricane Center during Frederic, 32 came as the hurricane plowed through the Gulf of Mexico.

Frederic was the first hurricane to strike Mobile, AL, directly since 1926. As mentioned previously, Mobile, and the Cape Canaveral, FL, area had gone the longest time of any location south of Cape Hatteras without a hurricane. The central pressure of 946 mb and estimated maximum sustained winds of 115 kn at landfall made Frederic the most intense hurricane of this century to affect the Mobile, AL-Pascagoula, MS, area. The highest wind reported in the United States was a gust to 126 kn on Dauphin Island bridge in Alabama, while a gust to 119 kn was observed at the Dauphin Island Sea Lab before the equipment was destroyed. The peak storm surge of 12 ft over Gulf Shores, AL, destroyed much of the island. An 11-ft surge at Dauphin Island destroyed the causeway leading to the island. Five deaths have been attributed directly to Frederic. The estimated damage total of \$2.3 billion makes Frederic the costliest U.S. hurricane in history.

### HURRICANE GLORIA, SEPTEMBER 4-15

Gloria was the first storm of the 1979 season not to affect any land areas. The disturbance which produced Gloria became a depression soon after moving off the northwest coast of Africa on September 4. It passed just north of the Cape Verde Islands, following a northwesterly course instead of the usual westerly course for early September. Satellite pictures indicated that Gloria reached tropical-storm strength on the 6th and hurricane strength early the following day while about 1,000 mi south-southwest of the Azores. The hurricane moved steadily northwestward at about 10 kn for the next 2 days before turning southwest and weakening briefly to a tropical storm late on the 10th. The weakening and blocking of the hurricane was associated with a higher latitude frontal system and its following high-pressure area. After the HIGH passed to the north, Gloria turned northeastward and accelerated in advance of the next frontal system, losing tropical characteristics about 300 mi northwest of

the Azores late on the 14th.

Satellite classifications of strength indicate that Gloria reached maximum intensity of 85 kn on the 13th with an estimated minimum central pressure of 975 mb. Gloria was a threat only to shipping, but there were no reports of damage.

### HURRICANE HENRI, SEPTEMBER 14-24

While Henri existed as a tropical cyclone for almost 10 days, only 3 of these were as a storm or hurricane. At one time or another during his life, Henri headed in each direction of the compass. In addition, he was the second hurricane of this century to form in the Gulf of Mexico and not make landfall as a storm, further, destroying the old saying that a landfall is inevitable once a hurricane is in the Gulf of Mexico. Because Henri remained in the southwest Gulf of Mexico while a storm, few ships were affected.

Late on September 14, reports from NOAA reconnaissance aircraft indicated a depression had formed near Cozumel, MX. On the morning of the 15th Air Force reconnaissance located the center north of the northeastern tip of the Yucatan Peninsula. It was moving westward, since a large high-pressure system to the north blocked any northward motion. Winds reached tropical-storm strength on the morning of the 16th as the center turned southwestward under the continued blocking influence of the large high-pressure system to the north. Henri became a hurricane early on the 17th as the center turned toward the northwest in response to the weakening ridge of high pressure over the northwest Gulf of Mexico. As a broad area of low pressure developed over the western Gulf of Mexico, Henri's movement became slow and erratic. He reached maximum strength of 75 kn and minimum sea-level pressure of 983 mb in the Bay of Campeche on the 17th, then weakened steadily for the next 48 hr to become a tropical depression on the afternoon of the 19th. The depression moved slowly east-northeastward for the next 5 days, remaining just south of a cold front which had moved into the northern Gulf of Mexico, and finally became part of the frontal low-pressure trough on the 24th.

Henri threatened the southwest coastline of Mexico in the Bay of Campeche for a time and also hampered efforts to control a runaway oil well in the Bay of Campeche. There have been no reports of casualties or monetary losses caused by Henri.

### SUBTROPICAL STORM, OCTOBER 23-25

A low-pressure system which developed on a front south of Bermuda about midday on October 23 strengthened rapidly as it moved north-northeastward and acquired some tropical characteristics. Bermuda reported a minimum pressure of 1002 mb at 2100 on the 23d, and the first visible satellite picture on the morning of the 24th suggested winds had reached 40 kn. The



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LOW accelerated to a forward speed of 25 kn during the afternoon, while continuing towards the north-northeast, passing through the North Atlantic shipping lanes south of Nova Scotia. The KAPUSKASING, east of the center, reported south-southeasterly winds of 65 kn with seas of 20 ft, and several other ships within 125 mi of the center reported winds of 45 to 50 kn. This was a

typical example of the rapidity with which this type of storm can form and move. Sable Island reported a pressure of 984 mb during the evening of the 24th, and the minimum pressure of the storm was estimated to be 980 mb about this time. The storm lost tropical characteristics near Newfoundland. No effects on maritime interests have been received.

Table 1.--Summary of North Atlantic tropical and subtropical cyclone statistics, 1979

No.	Name	Class	Dates	Maximum sustained winds (kn)	Lowest pressure (mb)	U.S. damage (\$ million) <sup>1</sup>	Deaths
1	Ana	T	June 19-23	50	1005		
2	Bob	H	July 9-16	65	986	20	1-U.S.
3	Claudette	T	July 16-29	45	997	400	1-U.S. 1-Puerto Rico
4	David	H	Aug. 25-Sept. 7	150	924	320	5-U.S. 7-Puerto Rico 56-Dominica 1,200-Dom. Rep.
5	Elena	T	Aug. 29-Sept. 1	35	1004	< 10	2-U.S.
6	Frederic	H	Aug. 29-Sept. 14	115	943	2,300	5-U.S. 7-St. Maarten
7	Gloria	H	Sept. 4-15	85	975		
8	Henri	H	Sept. 14-24	75	983		
9	--	ST	Oct. 23-25	65	980		

T - tropical storm (winds 34-63 kn)

H - hurricane (winds 64 kn or higher)

ST - subtropical storm (winds 34 kn or higher)

<sup>1</sup> includes Puerto Rico and U.S. Virgin Islands

**Table 2**  
**NORTH ATLANTIC TROPICAL CYCLONES FOR PAST YEARS**

TOTAL NUMBER OF TROPICAL CYCLONES, LOSS OF LIFE AND DAMAGE								
Total Number Tropical Cyclones*			Total Number Hurricanes		Loss of Life		Damage by Categories**	
Year	All Areas	Reaching U.S. Coast	All Areas	Reaching U.S. Coast	Total All Areas	United States	Total All Areas	United States
1931	9	2	2	0		0		#
1932	11	5	6	2		0		#
1933	21	7	9	5		63		7
1934	11	5	5	3		17		6
1935	6	2	5	2		414		7
	58	21	28	12				
1936	16	7	7	3		9		6
1937	9	4	3	0		0		4
1938	8	4	3	2		600		8
1939	5	3	3	1		3		3
1940	8	3	4	2		51		5
	46	21	20	8				
1941	6	4	4	2		10		7
1942	10	3	4	2	17	8	7	7
1943	10	4	5	1	19	16	7	7
1944	11	4	7	3	1,076	64	8	8
1945	11	5	5	3	29	7	8	8
	48	20	25	11				
1946	6	4	3	1	5	0	7	7
1947	9	7	5	3	72	53	8	8
1948	9	4	6	3	24	3	7	7
1949	13	3	7	2	4	4	8	8
1950	13	4	11	3	27	19	7	7
	50	22	32	12				
1951	10	1	8	0	244	0	7	6
1952	7	2	6	1	16	3	6	6
1953	14	6	6	2	3	2	7	7
1954	11	4	8	3	720+	193	9	9
1955	12	5	9	3	1,518+	218	9	9
	54	18	37	9				
1956	8	2	4	1	76	21	8	7
1957	8	5	3	1	475	395	8	8
1958	10	1	7	0	49	2	7	7
1959	11	7	7	3	57	24	7	7
1960	7	5	4	2	185	65	8	8
	44	20	25	7				
1961	11	3	8	1	345	46	8	8
1962	5	1	3	0	4	4	6	6
1963	9	1	7	1	7,218+	11	9	7
1964	12	6	6	4	266	49	9	9
1965	6	2	4	1	76	75	9	9
	43	13	28	7				
1966	11	2	7	2	1,040	54	8	7
1967	8	2	6	1	68	18	8	8
1968	8	3	5	1	11	9	7	7
1969	18	3	12	2	364	256	9	9
1970	10	3	5	1	74	11	9	8
	55	13	35	7				
1971	13	5	6	3	44	8	8	8
1972	7	3	3	1	128	121	9	9
1973	8	1	4	0	16	5	7	7
1974	11	2	4	1	3,000+	1	8	8
1975	9	1	6	1	80	21	9	9
	48	12	23	6				
1976	10	4	6	1	77	9	8	8
1977	6	1	5	1	10	0	7	7
1978	12	2	5	0	41	35	7	7
1979	9	5	5	4	1,285	22	9	9
Total	483	172	274	84				
Mean	9.9	3.5	5.6	1.7				

\*\*The Environmental Data Service has for some time recognized that, without detailed expert appraisal of damage, all figures published are merely approximations. Since errors in dollar estimates vary in proportion of the total damage, storms are placed in categories varying from 1 to 9 as follows:

- |                    |                            |                                    |
|--------------------|----------------------------|------------------------------------|
| 1 Less than \$50   | 4 \$5,000 to \$50,000      | 7 \$5,000,000 to \$50,000,000      |
| 2 \$50 to \$500    | 5 \$50,000 to \$500,000    | 8 \$50,000,000 to \$500,000,000    |
| 3 \$500 to \$5,000 | 6 \$500,000 to \$5,000,000 | 9 \$500,000,000 to \$5,000,000,000 |

\* Including hurricanes and after 1967 subtropical cyclones

# Not reported in literature, believed minor.

+ Additional deaths for which figures are not available.

Table 3  
NORTH ATLANTIC TROPICAL CYCLONES FOR PAST YEARS

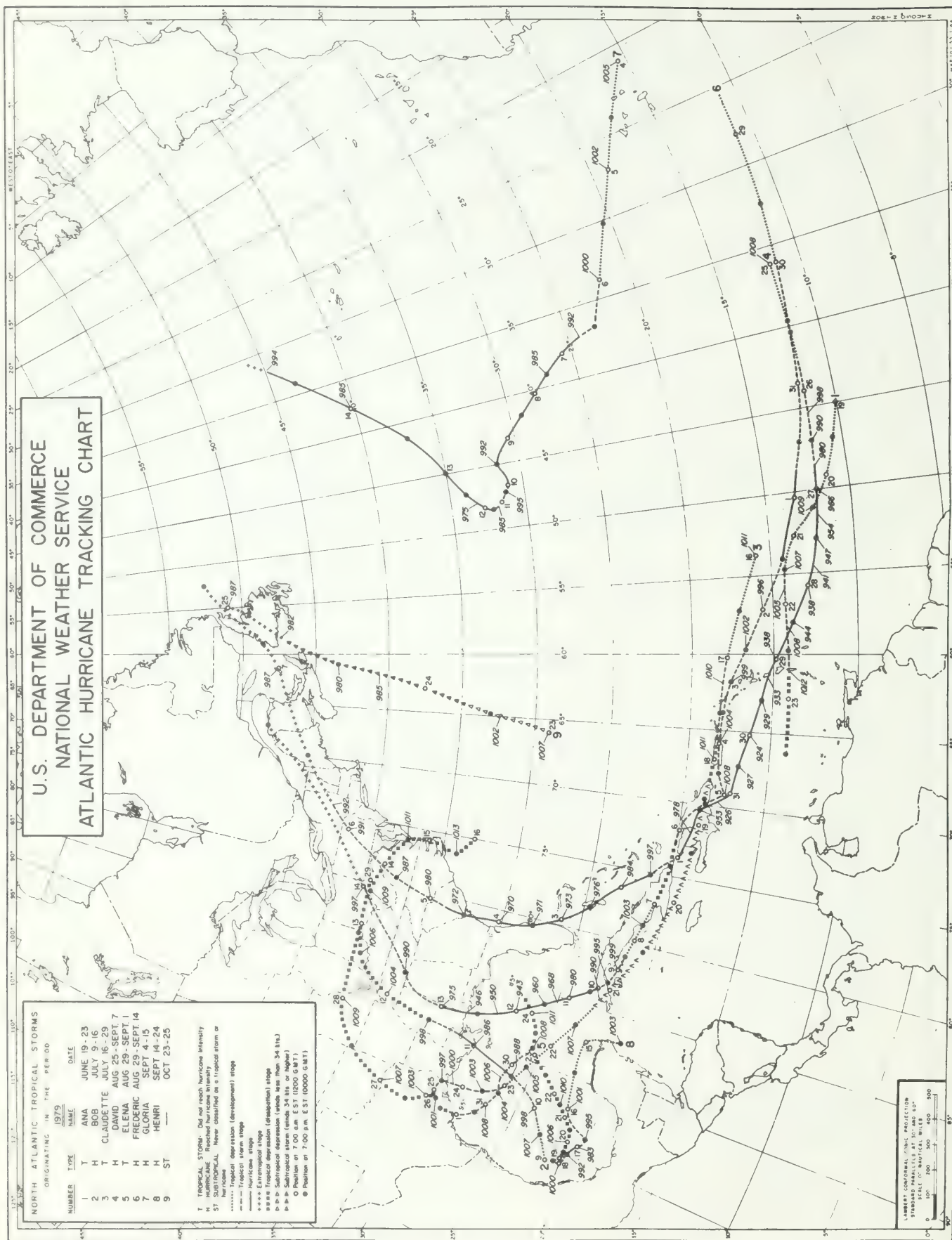
Frequency of Tropical Cyclones (Including Hurricanes) by Months and Years												Frequency of Tropical Cyclones Reaching Hurricane Intensity by Months and Years											
		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total			May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total		
1931			1	1	2	3	1	1		9		1931					2	1			2		
1932		1			3	3	3	1		11		1932				3	1	1	1		6		
1933		1	1	3	7	5	3	1		21		1933		1	1	3	3	1			9		
1934		1	1	1	2	2	3	1		11		1934		1	1	1	1	1	1		6		
1935					3	1	2			6		1935				2	1	2			5		
1936			3	2	6	4	1			16		1936		1	1	3	2				7		
1937				1	2	6				9		1937				2	3				3		
1938					3	1	3	1		8		1938				2	1				3		
1939			1		1	1	2			5		1939				1		2			3		
1940		1			3	2	2			8		1940				3	1				4		
1941												1941					3	1			4		
1942					3	3	3	1		10		1942				3			1		4		
1943				1	2	4	3			10		1943			1	1	2	1			5		
1944				3	2	4	2			11		1944			2	1	3	1			7		
1945			1	1	4	3	2			11		1945		1		1	1	2			5		
1946			1	1	1	1	2			6		1946			1		1	1			3		
1947				1	2	3	3			9		1947				2	1	2			5		
1948		1		1	2	3	1	1		9		1948				1	3	1	1	1	6		
1949					3	7	2	1		13		1949				2	4	1			7		
1950					4	3	6			13		1950				4	3	4			11		
1951		1			3	4	2			10		1951	1			2	3	2			8		
1952	(Feb.) 1	1			2	2	2			7		1952				2	2	2			6		
1953					3	4	4	1	1	14		1953				2	3	1			6		
1954			1	1	2	4	1	1	1	11		1954		1		2	3	1		1	6		
1955				1	4	5	2			12		1955				3	5	1	1		9		
1956			1	1	1	4	1			8		1956			1	1	1	1			4		
1957			2		1	4	1			8		1957			1	2	2				3		
1958			1		4	4	1			10		1958				3	3	1			7		
1959		1	2	2	1	3	2			11		1959		1	2		3	1			7		
1960			1	2	1	3				7		1960			1	1	2				4		
1961				1		6	2	2		11		1961			1		5	1	1		8		
1962					2	2	1			5		1962			1	1	1	1			3		
1963				1	1	5	2			9		1963			1	1	4	1			7		
1964			1	1	4	4	1	1		12		1964			1	2	3	1			6		
1965			1	1	2	2	1			6		1965				2	1	1			4		
1966			1	4	1	4				11		1966		1	3	1	1				7		
1967					1	4	3			8		1967				1	3	2	1		6		
1968			3	1	1	3	3			11		1968			2	1	1	1	1		6		
1969					5	6	5	1		18		1969				4	4				12		
1970		1		1	3	3	2			10		1970				1	3	2			5		
1971				1	4	4	1			11		1971				2	4				6		
1972			1		2	2	2	1		7		1972		1		1	1				3		
1973				2	2	3	1	1		9		1973			1	1	1	1			4		
1974			1	1	4	4	1			11		1974				1	2				4		
1975			1	1	1	3	1		1	9		1975			1	2	4				6		
1976		1		1	5	4	2			16		1976				4	1	1			6		
1977					1	1	3			5		1977				1	3				4		
1978	(Jan) 1		1	1	4	3	3			12		1978				2	2	1	1		5		
1979			1	2	2	1	1			7		1979			1	2	2				5		
Totals	(Jan) 1 (Feb) 1	11	27	41	127	166	92	17	3	483		Totals	2	11	19	80	106	48			271		



# U.S. DEPARTMENT OF COMMERCE NATIONAL WEATHER SERVICE ATLANTIC HURRICANE TRACKING CHART

NORTH ATLANTIC TROPICAL STORMS ORIGINATING IN THE PERIOD		
NUMBER	NAME	DATE
1	ANA	JUNE 19-23
2	BOB	JULY 9-16
3	CLAUDETTE	JULY 16-29
4	DAVID	AUG 29-SEPT 7
5	ELENA	AUG 29-SEPT 1
6	FREDERIC	AUG 29-SEPT 14
7	GLORIA	SEPT 4-15
8	HENRI	SEPT 14-24
9	ST	OCT 23-25

T TROPICAL STORM (48 mph wind, hurricane intensity)  
H HURRICANE (74 mph wind, hurricane intensity)  
ST SUBTROPICAL (48 mph wind, hurricane intensity)  
HURRICANE (74 mph wind, hurricane intensity)  
TROPICAL DEPRESSION (development) stage  
TROPICAL STORM stage  
EXTREMELY TROPICAL stage  
TROPICAL DEPRESSION (disappearance) stage  
SUBTROPICAL DEPRESSION (disappearance) stage  
DISAPPEARANCE (disappearance) stage  
POSITION AT 7:00 a.m. EST (1200 GMT)  
POSITION AT 7:00 p.m. EST (1800 GMT)



STANDARD PARALLELS AT 10° AND 12°  
SCALE OF NAUTICAL MILES  
0 100 200 300 400 500

# EASTERN NORTH PACIFIC TROPICAL CYCLONES, 1979

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The 1979 eastern North Pacific tropical cyclone season began on May 31 and ended November 18. Spanning 172 days, the season was 28 days longer than the 1978 season, but it was less active. There were only 13 cyclones in 1979, compared to 21 in 1978. Of the 13, 3 were tropical depressions, 4 were tropical storms, and 6 were hurricanes. Hurricane hours (326) in 1979 were down 61 percent from the 1978 season, and tropical storm hours (482) were down 45 percent. The highest sustained windspeed during the 1979 season was 125 kn. Two-thirds (4) of the 1979 hurricanes had windspeeds of 100 kn or more compared to only half of the 1978 hurricanes (6). Table 1 shows the monthly distribution of 1979 tropical-cyclone activity and tables 2 and 3 compare this activity with that of recent years. The 1966-79 period was chosen for comparison, since it probably includes all tropical-cyclone activity in the area owing to excellent satellite coverage. Prior to 1966 some activity was undetected because of the sparsity of data. Cyclone tracks are shown in Figures 1 and 2.

The Eastern Pacific Hurricane Center issued 198 tropical-cyclone advisories during the 1979 season, a 50-percent decrease from the previous season. Advisories were issued four times daily on a regular schedule for cyclone positions at 0000, 0600, 1200, and 1800.

Although several ships passed close to the centers of tropical cyclones and undoubtedly experienced heavy weather and seas, no reports of casualties or damage were received.

Three tropical cyclones moved onshore, all into Mexico. The first was hurricane Andres with 65-kn winds 90 mi southeast of Manzanillo at 1300 June 4. The second was tropical depression Nine with 25-kn winds 145 mi east-southeast of Acapulco at 1800 on September 4, and the last to move onshore was hurricane Ignacio with 30-kn winds 140 mi east-southeast of Manzanillo at 1200 October 30. No reports of casualties or damage were received.

The National Environmental Satellite Service Field Station, collocated with the Eastern Pacific Hurricane Center, provided excellent satellite coverage during the 1979 season. Movie loops, GOES visual and infrared data, and polar-orbiting satellite data were available. Cyclonic intensity was calculated using the Dvorak technique of satellite cyclone analysis.

The U.S. Air Force made three reconnaissance

flights into hurricane Ignacio off the central Mexican coast during October 27 to 29.

Although satellite imagery continues to improve and is probably one of the most important tools used by the tropical forecaster today, aircraft reconnaissance and synoptic ship reports retain their importance as invaluable comparative ground-truth observations.

Several computer-derived forecasts of tropical-cyclone tracks for the eastern North Pacific were provided by the National Hurricane Center in Miami. The forecast tracks included an analog model (EPANA-LOG), a statistical synoptic model (EPHC77), a simulated analog model (CLIPER), and a barotropic model (SANBAR).

Only named tropical cyclones are described in the following paragraphs. There were three numbered cyclones that did not develop to tropical-storm strength. None of these moved into the central North Pacific area west of 140°W.

## HURRICANE ANDRES - MAY 31-JUNE 4

The first cyclone of the season only reached depression strength. Andres, the second cyclone of the season, began as a tropical disturbance 200 mi south of the Gulf of Tehuantepec on May 31. By 1800 cyclonic circulation had developed and he was upgraded to a tropical depression near 11°N, 95.5°W, with winds between 25 and 30 kn. The cyclone turned north-northwestward and slowly began to intensify. At 1800 June 1 the cargo ship ATLANTIC NEPTUNE, 105 mi west of the depression, reported north-northwesterly 25-kn winds, 15-ft seas, and a sea-surface temperature of 86°F. At 0600 on June 2 winds near the center had increased to 35 kn, and the cyclone was upgraded to tropical storm Andres near 12.8°N, 98.8°W, about 250 mi south of Acapulco, Mexico. Winds had reached 55 kn by June 3. The cargo ships SATURN DIAMOND and MAMMOTH FIR and the tankers OVERSEAS ALEUTIAN and ATIGUN PASS were helpful in locating the center of Andres between 1800 June 2 and 0000 June 3. At 1200 on the 3rd another tanker, the TEXACO GEORGIA, 140 mi east of Andres, reported east-southeasterly 32-kn winds, heavy rains, and 14-ft seas. The ATIGUN PASS was now 100 mi east-southeast of Andres and reported east-southeasterly 60 to 65-kn winds, heavy rains, high seas, and a pressure of 992 mb. At 1500 winds on the TEXACO GEORGIA, which was now 100 mi east of the storm's center, had shifted to the south-southeast at 44 kn and the seas had increased to 18 ft. At 1800 the storm was upgraded to a hurricane near 16.7°N, 100.7°W just



## EASTERN NORTH PACIFIC TROPICAL CYCLONES

50 mi west of Acapulco. Andres now turned west-northwestward and continued intensification. At 2300 the TEXACO GEORGIA, 25 mi east of Andres, reported 77-kn winds and 30-ft seas. The ship also reported the apparent center of the hurricane as a violent circular squall area, 18 mi in radius, converging from all quadrants. By June 4 winds near the center of the hurricane had reached maximum intensity of 85 kn. The TEXACO GEORGIA, 6 mi to the east, reported southerly 80-kn winds, heavy continuous rain, sea-surface temperature of 81°F, and a pressure of 997.6 mb. At 0230 June 4 the tanker KEYSTONEER reported the hurricane eye at 17.2°N, 101.9°W. The ship, 90 mi south of Andres, reported 70-kn winds, 20-ft seas, and 995-mb pressure. The hurricane was 25 mi from the Mexican coast, midway between Acapulco and Manzanillo. Andres turned northwestward and began to weaken. By 1200 winds had decreased to 65 kn, and at 1300 Andres moved onshore 215 mi west-northwest of Acapulco and 90 mi southeast of Manzanillo and weakened rapidly.

### TROPICAL STORM BLANCA - JUNE 21-25

An Atlantic tropical disturbance crossed the Isthmus of Panama and Costa Rica and moved into the eastern North Pacific on June 17. On the 21st satellite imagery showed cyclonic circulation, and the disturbance was upgraded to a tropical depression about 400 mi east of Clipperton Island. Winds near the center increased to 35 kn by the 22nd, and the depression was upgraded to tropical storm Blanca near 9.3°N, 107°W. Moving westward, the storm continued to intensify over 84°F water. Blanca reached maximum intensity of 45 kn by 0600 about 80 mi east-southeast of Clipperton Island. The storm passed 30 mi south of Clipperton Island at 1300, then turned west-northwestward and weakened. On the 24th the winds had diminished to 35 kn. On the 25th they were down to 25 kn, and the storm was downgraded to a tropical depression near 12.8°N, 122.8°W. The cyclone was now over 80°F water and weakening rapidly.

### TROPICAL STORM CARLOS - JULY 14-16

The fourth cyclone of the season developed near the Gulf of Tehuantepec on July 11. It moved across the Gulf at 8 kn and began to slowly intensify. Late on the 14th satellite pictures showed cyclonic circulation, and the disturbance was upgraded to a tropical depression 220 mi west of Acapulco, Mexico. The depression turned west-northwestward and began to intensify rapidly, while moving over a ridge of warm 86°F water. On the 15th the depression was upgraded to tropical storm Carlos at 17.4°N, 104.4°W. Winds near the center increased to maximum intensity of 45 kn from 1200 through 1800, then began to decrease as the storm accelerated to 18 kn over 82°F water. The cargo ship HIRATSUKA MARU helped locate the center of the storm between 0600 and 1800. By 0000 on the 16th winds had diminished to 30 kn, and Carlos was downgraded to a tropical depression about 40 mi east-southeast of Socorro Island. The cyclone then turned westward and passed 15 mi south of Socorro Island between 0100 and 0200. Moving toward cooler water and low clouds to the

west, the depression weakened rapidly.

### HURRICANE DOLORES - JULY 17-23

Hurricane Dolores was spawned 350 mi south of the Guatemalan coast on July 14. Moving west at 10 kn, the disturbance began to intensify. At 0600 on the 17th the disturbance was upgraded to a tropical depression near 10.5°N, 103.7°W. Winds near the center increased to 35 kn by 1800, and the depression was upgraded to tropical storm Dolores near 11.2°N, 107°W. The RODE ZEE reported in while 160 mi to the northeast of the center. Dolores continued to intensify over 85°F water as she moved around the southern side of an upper level high-pressure area centered over Baja, California. On the 18th her winds had increased to 65 kn, and she was upgraded to a hurricane near 12.4°N, 112.6°W. Satellite pictures showed Dolores with a well-defined eye by 1800 on the 19th. Winds increased to 100 kn by 0600 on the 20th and reached maximum intensity of 105 kn by 0000 on the 21st. Increasing in forward speed to 11 kn, Dolores continued to move northwestward around the upper level high-pressure area, which had moved to northern Mexico. She was 600 mi offshore and moving parallel to the Baja California coast. The cyclone began to weaken over colder 78°F water. At 0000 on the 22nd her winds had decreased to 60 kn, and the hurricane was downgraded to a tropical storm near 20.3°N, 121.8°W. Low clouds feeding into the cyclonic circulation from the north and west rapidly weakened the cyclone. By 1800 her winds had diminished to 30 kn, and the storm was downgraded to a tropical depression near 23.3°N, 124.2°W.

### HURRICANE ENRIQUE - AUGUST 17-24

Three and one-half weeks elapsed before the next cyclone, which began as a tropical disturbance near 11°N, 107°W. Moving westward, it began to intensify over 86°F water. At 1800 on the 17th the disturbance was upgraded to tropical depression, and 6 hr later it was upgraded to tropical storm Enrique near 11.2°N, 114.9°W. The cyclone turned west-northwestward with winds increasing to 55 kn by 1800 on the 18th. Enrique then turned westward and was upgraded to a hurricane at 0000 on the 19th near 12.8°N, 119°W. Satellite pictures were beginning to show an eye near the center of the cyclone. A report at 1800 from the CHAMPLAIN was especially useful in the analysis. Winds had increased to 70 kn, but decreased to 65 kn as the storm moved over 81°F water on the 20th. Enrique then turned northwestward and continued to weaken as low clouds to the north began to feed into the cyclonic circulation. On the 21st winds had diminished to 55 kn, and Enrique was downgraded to a tropical storm. About 1,300 mi to the east the next cyclone of the season had just been upgraded to tropical storm Fefa, 250 mi southwest of Acapulco, Mexico. Still moving northwestward, Enrique passed beyond the field of low clouds and once again began to intensify. By 1700 on the 21st his winds had increased to 70 kn, and he was again upgraded to a hurricane. Continuing northwestward, Enrique intensified rapidly. By



## EASTERN NORTH PACIFIC TROPICAL CYCLONES

0000 on the 22nd the winds had reached 110 kn; by 1200 Enrique reached maximum intensity of 125 kn. The cargo ship AUSTRAL MOON, 70 mi to the west, reported northwesterly 50-kn winds, 35-ft seas, an air temperature of 75°F, and a sea-surface temperature of 72°F. By 1800 Enrique was near 18.9°N, 129.9°W, and the AUSTRAL MOON, 180 mi to the south-southwest, reported northwesterly 35-kn winds and 24-ft seas. The CRYSTAL AZALEA, 230 mi west of Enrique, reported northeasterly 35-kn winds, 13-ft seas, an air temperature of 75°F, and a sea-surface temperature of 72°F. Continuing northwestward, Enrique began to move over progressively colder water and weakened. With low clouds feeding into the cyclone his winds diminished to 55 kn on the 23rd, and he was downgraded to a tropical storm near 20.4°N, 132°W. On the 24th the winds were only 30 kn, and the storm was downgraded to a tropical depression at 21.1°N, 133.5°W.

### HURRICANE FEFA - AUGUST 21-25

Hurricane Fefa began 340 mi south-southeast of Acapulco on August 19. On the 21st the disturbance was upgraded to a tropical depression near 13.9°N, 101.8°W. By 0600 winds had increased to 35 kn, and the cyclone was upgraded to tropical storm Fefa 250 mi southwest of Acapulco. As the storm moved west-northwestward, the tanker ANCO SCEPTRE and the cargo ship ALPS MARU aided the analysts. Fefa had turned westward and, with 55-kn winds increasing to 75 kn, was upgraded to a hurricane near 15.8°N, 109.6°W, at 0600 on the 22nd. Winds reached 90 kn by 1200 as Fefa passed 150 mi south of Socorro Island. She reached maximum intensity of 100 kn at 1200 on the 23rd. Turning westward, Fefa began to slow and weaken over 78°F water. At 0600 on the 24th the hurricane was downgraded to a tropical storm with 55-kn winds near the center. Weakening rapidly, Fefa was downgraded to a tropical depression at 1800.

### HURRICANE GUILLERMO - SEPTEMBER 8-13

Guillermo, the tenth cyclone of the season, began as a tropical disturbance 130 mi south of the Gulf of Tehuantepec on September 7. The PISCES, 170 mi southeast of the center, was helpful in locating the center of the depression. Winds increased to 40 kn by 0600 on the 9th, and the depression was upgraded to tropical storm Guillermo near 16.8°N, 103.9°W. The KEELONG and HOHKOKUSAN MARU were useful on the 1800 analysis. Guillermo turned northwestward and began to move around the southwestern side of an upper level HIGH centered over central Mexico. The cargo ship AMERICAN HIGHWAY reported in the area at 1800 on the 10th. The cargo ships AMERICAN LEGION and KUROBE MARU reported on the 11th. The cargo ship CHU FUJINO, 20 mi southeast of the storm at 1600, found 60-kn winds, rough seas, and a pressure of 994 mb. Winds near the center of Guillermo reached maximum intensity of 65 kn by 1800, and the storm was upgraded to a hurricane near 21.1°N, 110.5°W. Guillermo slowly weakened over 79°F water and winds decreased. He was downgraded to a tropical storm at 0600 on the 12th and to a

tropical depression on the 13th. In the 30 hr between 1800 September 11 and 0000 on the 13th, the AGNES FOSS, DANWOOD ICE, HAITI MARU, LEDA, OGDEN DANUBE, and FIREBUSH helped to locate the storm.

### TROPICAL STORM HILDA - OCTOBER 4-6

Tropical cyclone eleven began 200 mi south of the Guatemalan coast on October 1. Moving westward over 82°F water, the disturbance intensified to a tropical depression by the 4th. Tuna fishing boats north and south of the cyclone aided in locating the cyclone. Moving westward over 85°F water, the depression continued to intensify, then turned west-northwestward, and was upgraded to tropical storm Hilda with 40-kn winds near 14.6°N, 110.4°W, on the 5th. Hilda turned westward again and passed 250 mi south of Socorro Island at 0900. By 0000 on the 6th her winds had decreased to 30 kn, and the storm was downgraded to a depression.

### HURRICANE IGNACIO - OCTOBER 23-30

Two weeks elapsed before the next cyclone, which began 200 mi southwest of the Guatemalan coast on October 22. The disturbance began to intensify and was upgraded to a depression near 11.7°N, 95.3°W, at 1800 on the 23rd. The winds increased to 35 kn by 1200 on the 24th, and the depression was upgraded to tropical storm Ignacio near 11.4°N, 97.9°W. At 1800 on the 26th winds were found to have increased to 70 kn over 87°F water, and the storm was upgraded to a hurricane. At 1742 on the 27th U.S. Air Force reconnaissance aircraft located the center of Ignacio near 17°N, 107.3°W. Winds near the center of the cyclone had increased to their maximum intensity of 125 kn. The hurricane eye had a well-defined, closed wall 20 mi in diameter. Surface pressure was estimated at 938 mb. Reconnaissance aircraft made a second and third penetration of the cyclone at 1930 and 2022. Surface pressure was estimated at 937 mb, and the eye was reported covered with broken clouds. At the same time the BODENA, LUTSK, PIONEER COMMANDER, and VERRANZANO BRIDGE were penetrating the storm. At 1755 on the 28th reconnaissance aircraft flew into Ignacio again and located the center near 17.7°N, 108.1°W. Surface pressure was now estimated at 969 mb and the eye, filled with low clouds, had decreased to a diameter of 5 mi. A second penetration of the cyclone at 1930 showed little change. The cyclone now turned eastward, and with 80-kn winds continued to weaken. The following ships reported on the storm: the TOYOTA MARU No. 19, NEDLLOYD KINGSTON, PANGUEON, PACIFIC ACE, and FAIRSEA. Winds near the center of the cyclone diminished to 55 kn by 1800 on the 29th, and the hurricane was downgraded to a tropical storm. Reconnaissance aircraft again flew through Ignacio at 2137 on the 29th. Surface winds were verified at 55 kn, and the surface pressure was 995 mb. The eye had expanded to a diameter of 20 mi, but it was poorly defined and filled with midlevel clouds. A second penetration at 2252 estimated the winds at 50 kn with a pressure of 997 mb and the eye open to the north and south. A third and fourth penetration

## EASTERN NORTH PACIFIC TROPICAL CYCLONES

at 0003 and 0038 on the 30th showed little change. Ignacio was now 75 mi southwest of Manzanillo, Mexico. He moved rapidly eastward toward the Mexican coast and moved onshore 140 mi east-south-east of Manzanillo. Remnants of Ignacio drifted across southern Mexico, dissipating over the Yucatan Peninsula on October 31.

### TROPICAL STORM JIMENA - NOVEMBER 15-18

The thirteenth and final cyclone of the season was discovered 80 mi south of Panama on November 13. It began to intensify over 84°F water, and by 0600 on the 15th satellite imagery showed cyclonic circulation. The winds increased to 35 kn by 2100, and the depression was upgraded

to tropical storm Jimena. By 0000 on the 16th Jimena was near 8.5°N, 91°W. She turned west-northwestward and continued to intensify. The cargo ship NORSE PILOT and the passenger liner ISLAND PRINCESS reported on the cyclone near 9°N, 93°W, at 1200. The winds reached maximum intensity of 55 kn by 1800. The storm then began to weaken over 82° F water and under the influence of the Tehuantepec winds flowing in from the north. By 0000 on the 18th winds had decreased to 30 kn, and the cyclone was downgraded to a depression. The final advisory was issued at 0600 with the center 370 mi south of Acapulco, Mexico. Remnants of Jimena drifted westward for another 72 hr before disappearing from satellite view.

Table 1.--Monthly distribution of eastern North Pacific tropical cyclones, 1979\*

	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
Tropical depressions	1	0	1	0	1	0	0	3
Tropical storms	0	1	1	0	0	1	1	4
Hurricanes	0	1	1	2	1	1	0	6
Total	1	2	3	2	2	2	1	13

\*Cyclones are ascribed to the month in which they began.

Table 2.--Frequency of eastern North Pacific tropical storms and hurricanes combined by months and years\*

Year	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
1966	0	1	0	4	6	2	0	13
1967	0	3	4	4	3	3	0	17
1968	0	1	4	8	3	3	0	19
1969	0	0	3	2	4	1	0	10
1970	1	3	6	4	1	2	1	18
1971	1	1	7	4	2	2	1	18
1972	1	0	1	6	2	1	1	12
1973	0	3	4	1	3	1	0	12
1974	1	3	3	6	2	2	0	17
1975	0	2	4	5	3	1	1	16
1976	0	2	4	4	3	1	0	14
1977	1	1	1	1	3	1	0	8
1978	1	3	4	6	2	2	0	18
1979	0	2	2	2	1	2	1	10
Total	6	25	47	57	38	24	5	202
Average	0.4	1.8	3.4	4.1	2.7	1.7	0.4	14.4

\*Cyclones are ascribed to the month in which they began.

Table 3.--Number of eastern North Pacific tropical storms reaching hurricane intensity by months and years\*

Year	May	June	July	Aug.	Sept.	Oct.	Nov.	Total
1966	0	1	0	4	2	0	0	7
1967	0	1	0	2	1	2	0	6
1968	0	0	0	3	2	1	0	6
1969	0	0	1	1	1	1	0	4
1970	1	0	1	1	0	1	0	4
1971	1	1	5	2	2	1	0	12
1972	1	0	0	6	1	0	0	8
1973	0	1	3	0	2	1	0	7
1974	0	2	2	4	2	1	0	11
1975	0	1	2	3	1	1	0	8
1976	0	2	1	2	3	0	0	8
1977	0	0	1	1	1	1	0	4
1978	1	2	3	4	1	1	0	12
1979	0	1	1	2	1	1	0	6
Total	4	12	20	35	20	12	0	103
Average	0.3	0.9	1.4	2.5	1.4	0.9	0.0	7.4

\*Cyclones are ascribed to the month in which they began.



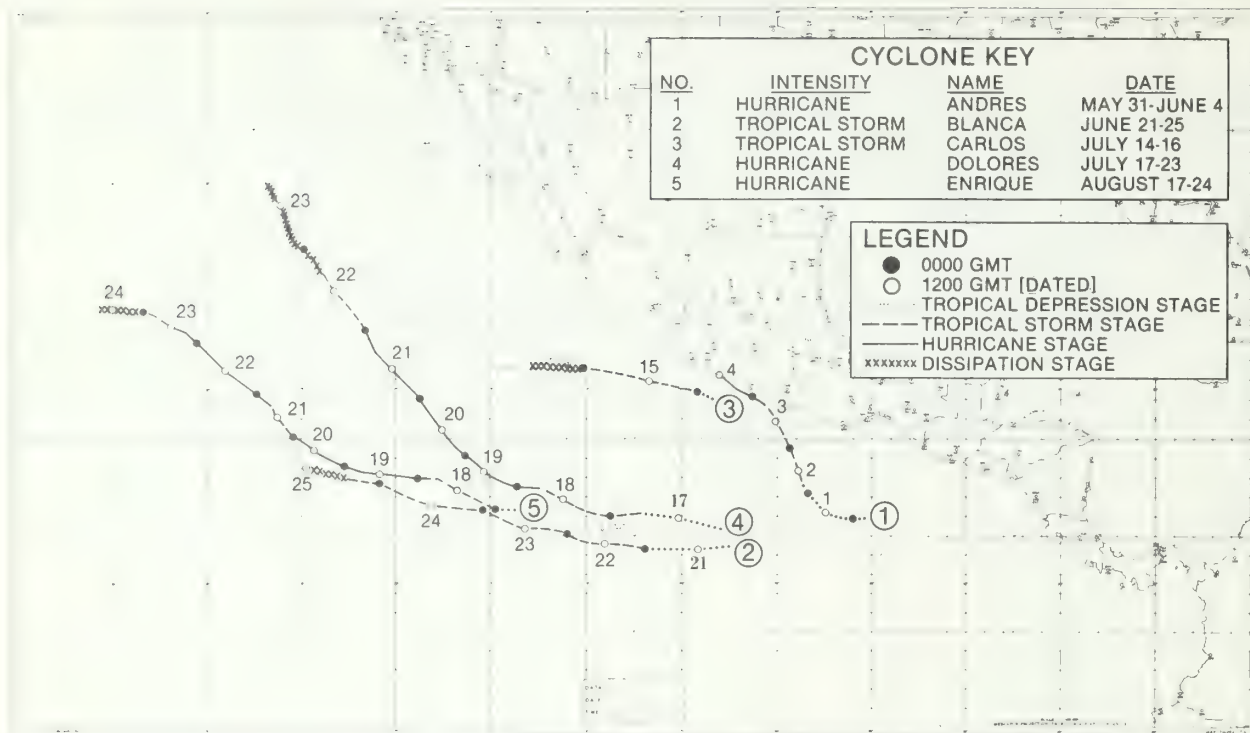


Figure 1. ---Tracks of eastern North Pacific tropical cyclones, May 31 to August 24, 1979.

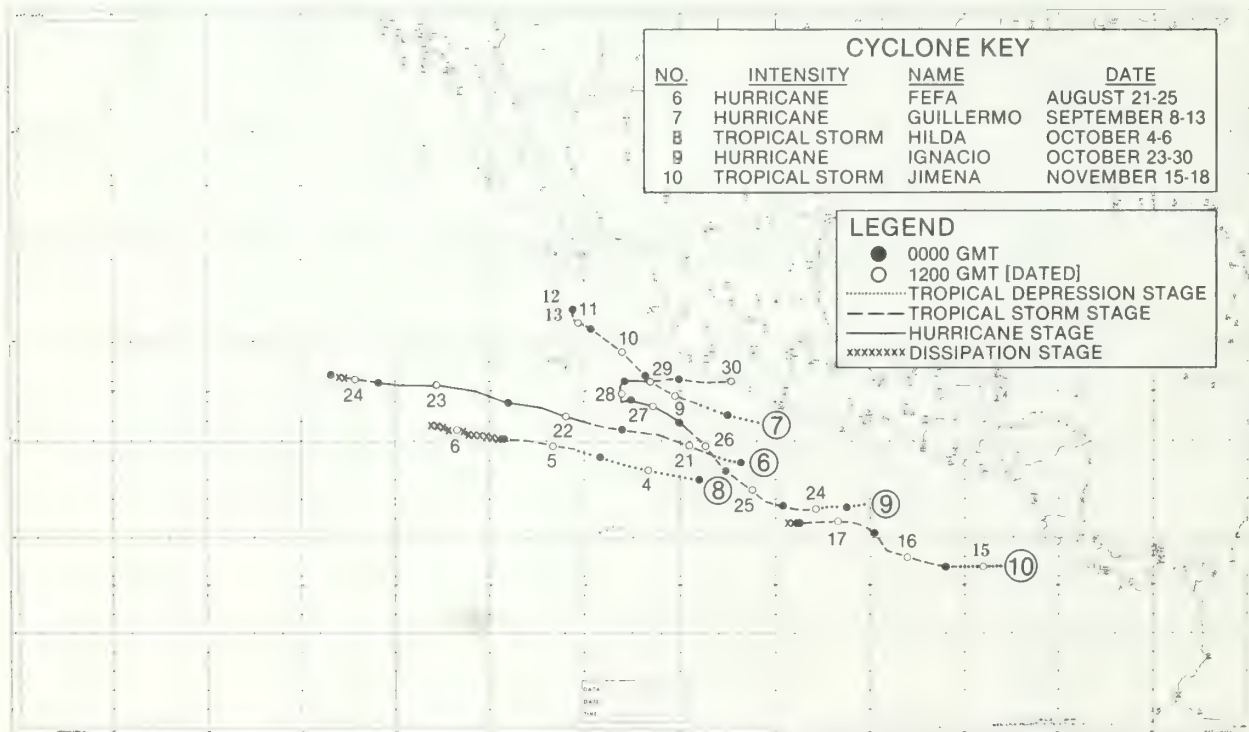


Figure 2. ---Tracks of eastern North Pacific tropical cyclones, August 21 to November 18, 1979.

# WESTERN NORTH PACIFIC TYPHOONS, 1979

Extracted from Annual Typhoon Report, 1979, U.S.  
Fleet Weather Central, Joint Typhoon Warning Center,  
Guam, Mariana Islands

The western North Pacific experienced a below-normal year of tropical-cyclone activity with 28 cyclones during 1979 (Table 1). By comparison, 1978 was a nearly normal year with 32 cyclones, and 1977 was a near record-low year with 21 cyclones. Five significant tropical cyclones never developed beyond the tropical-depression stage, and nine developed into tropical storms. Of the 14 cyclones that developed to typhoon stage, only 4 reached the 130-kn intensity necessary to be classified as a supertyphoon. This season, beginning with typhoon Bess, tropical cyclones attaining tropical-storm strength or greater were assigned names on an alternating male/female basis. This change was a result of the 1979 Tropical Cyclone Conference. Each tropical cyclone's maximum surface wind (kn) and minimum observed sea-level pressure (mb) were obtained from best estimates of all available data. The distance traveled (mi) was calculated from the Joint Typhoon Warning Center's (JTWC) official best track.

Tables 2 and 3 provide further information on the monthly distribution of tropical cyclones. Even though there were four fewer cyclones this season compared to last season, there were 18 more warning days for a total of 149. There were 38 warning days with two cyclones and 5 warning days with three or more cyclones.

The cyclone tracks are shown in Figures 1, 2, and 3. The tracks are indicated from first detection until dissipation or becoming extratropical. In Tables 2 and 3 the storms are credited in the month that the first warning was issued.

## TYPHOON ALICE

Typhoon Alice, the first tropical cyclone of the 1979 season, was actually first sighted as a tropical disturbance on December 27, 1978. The potential for development was considered poor as it was so near the Equator. On January 1, 1979, the disturbance accelerated to higher latitudes and was named Alice. She meandered through the Marshall Islands, causing much damage as an upper air, short-wave trough temporarily steered her on a northeasterly track. On the 4th she turned back on a normal westerly track.

From the 6th to the 11th, Alice traveled due west. On the 8th she attained 110-kn intensity and simultaneously accelerated to a speed of 14 kn whereupon she began weakening slowly.

During the 9th, Alice began an unexpected northward movement and showed further weakening. Postanalysis of low-level synoptic data and satellite imagery indicated that an approaching frontal shear-line was the responsible agent. The

shear-line began interacting with Alice while she was southeast of Guam. As Alice neared Guam, radar data from Andersen Air Force Base and aircraft data indicated that Alice's previously well-defined wall cloud had become larger and somewhat less organized. Cooler, drier air north of the shear line probably was responsible for this weakening trend. A weakness in the subtropical ridge vertically above the shear-line apparently allowed for Alice's northward deviation.

The most unusual portion of Alice's track occurred during the final 3 days of Alice's life. Based on interpretation of computer prognoses, the subtropical ridge was expected to persist and maintain Alice in the easterlies. As a result, the JTWC forecasts indicated a westward movement until 0000 on the 12th, 18 hr after Alice had actually begun tracking northwestward. The subtropical ridge weakened in response to a long-wave trough deepening over eastern Asia. Easterly steering currents in Alice's vicinity diminished and veered in direction, permitting a more northward track. Alice reached a secondary intensity maximum of 100 kn during this period due to her slowing in speed of movement, the increased absolute vorticity of higher latitudes, and good outflow aloft.

By the 13th, Alice turned northeastward and began weakening rapidly. The subtropical ridge was now completely severed and upper air westerlies were shearing Alice significantly in the vertical. Close proximity of yet another frontal shear-line contributed to further weakening. The biggest surprise, however, came when Alice's low-level circulation turned almost 180° back toward the west at about 1200 on the 13th under the influence of strong, low-level easterlies. Alice weakened rapidly in the strong, vertical-shear environment and dissipated during the next 12 hr.

## TYPHOON BESS

Since 1959, only three typhoons have developed over the western Pacific in March. Of these, only Bess developed in the last decade with Tess developing in 1961 and Sally in 1967. Tropical-cyclone development in March is usually inhibited by a southward adjustment in the subtropical ridge axis. Although not recognized in advance, typhoon Bess' development paralleled that of typhoon Tess, which developed in the eastern Caroline Islands and reached tropical-depression strength near Woleai Atoll. Continuing northwestward between Guam and Yap, both recurved northward near 135°E before dissipating north of 20°N under the influence of a strong vertical shear.

Synoptic data at 0000 on March 16 suggested



## WESTERN NORTH PACIFIC TYPHOONS

the existence of a weak surface circulation near 3°N, 152.5°E at the base of a wave in the easterly flow. Satellite imagery at 0119 showed an ill-defined area of convection near the surface circulation. By 1109 increased upper level organization suggested development of a weak 200-mb anticyclone. Increased curvature in the midlevel convective cloud pattern hinted at the possibility of tropical cyclone formation. Continuing to pulsate, the suspect area presented a curious, but intensified, upper level convective pattern on satellite imagery on the 17th. Synoptic analysis on the 18th indicated that, in addition to the circulation near 3.5°N, 147.5°E, a secondary LOW had developed on the slow-moving wave axis near 7.1°N, 150°E, and that the earlier ill-defined convection had been associated with these two circulations. As this secondary LOW tracked northward up the wave axis, increased cyclonic shear between strong easterly flow north of the wave and weak equatorial westerlies south of the wave caused the northern circulation to become the dominant center as the initial LOW weakened. Simultaneously, the upper level anticyclone intensified, producing an excellent outflow signature on satellite imagery. Aircraft data at 0259 on the 20th found strong enhanced easterly flow of 20 to 30 kn to the northeast, but only weak cyclonic flow to the south and east. Aircraft reports finally confirmed tropical-storm strength early on the 21st, 5 days after Bess was first observed.

Sea-surface temperature (SST) plays a vital role in the development and maintenance of tropical cyclones. A study indicates that tropical cyclones which move over water cooler than 26°C are less likely to intensify due to a reduction in latent heat. The study further states that tropical cyclones which develop prior to June intensify up to 10 kn after recurvature. This intensification, if experienced, will occur within the 12 to 24 hr following recurvature. Typhoon Bess followed this recurvature pattern. The axis of recurvature was crossed at 0000 on the 23d. Slow intensification occurred over the next 18 hr with Bess reaching maximum intensity of 90 kn at 1800. She maintained 90 kn for 18 hr, then rapidly weakened and dissipated by the 25th. SST analyses during March 24 to 27 indicate that the area in which Bess weakened from 90 to 60 kn in a 6-hr period corresponds closely to the location of water cooler than 26°C. The reduction of latent heat input, coupled with increased vertical shear produced by strong westerlies aloft, literally sheared Bess apart during the final 12 to 18 hr.

### TYPHOON CECIL

Typhoon Cecil, the first tropical cyclone in the northwest Pacific given a male name, generated in mid-April from an easterly wave over the Philippine Sea. Cecil was forecast very well while on a climatological west-northwestward track toward the central Philippines. Overall, postanalysis statistics showed that mean forecast errors were better than long-term averages. Nevertheless, JTWC warnings failed to forecast the crucial recurvature point in Cecil's track. Was

there sufficient evidence to forecast this recurvature 24 to 48 hr in advance?

Postanalysis showed that recurvature occurred 36 hr after the 1200 April 15 best-track position. Satellite imagery located Cecil just south of Samar. At this time the 500-mb subtropical ridge axis was at 17°N with a small high-pressure cell over northern Luzon. The 500-mb 36-hr prognosis maintained this ridge. Steering techniques based on the synoptic situation indicated westward movement for 72 hr. Analog techniques indicated west-northwestward movement. In fact, no objective forecast technique indicated recurvature prior to entrance into the South China Sea. The climatological average location of the 500-mb ridge axis is along 15°N over the Philippines for April, and the climatological recurvature point is 15° to 17°N. Both synoptic and climatological data indicated a west-northwestward track over the Philippines with recurvature late in the forecast period in South China Sea as Cecil tracked to the vicinity of 15°N. Postanalysis however, revealed that the ridge axis east of the Philippines abruptly shifted south late on the 16th with westerly winds intruding far to the south over the South China Sea. This pattern shift caused Cecil to recurve much earlier than anticipated. Within 48 hr, Cecil was well east of Luzon. The ridge axis shift was the vital piece of information not present in any of the available prognostic tools. Thus, it appears even in postanalysis that forecasting of Cecil's recurvature 36 hr in advance was beyond the state-of-the-art capabilities.

### TYPHOON ELLIS

The tropical disturbance which later became typhoon Ellis was first noted on June 25. The surface/gradient-level analysis showed that a broad monsoon trough had developed between Guam and the Philippine Islands. At upper levels, a Tropical Upper Tropospheric Trough (TUTT) was oriented northeast-southwest between the Volcano Islands and the central Philippine Islands. This TUTT allowed excellent upper level outflow to the northeast and was expected to induce intensification of the tropical disturbance southeast of the TUTT axis. However, significant development did not occur. Reconnaissance aircraft could find only a very broad surface circulation with relatively high surface pressures. The surface circulation drifted under the TUTT, and the associated convection was suppressed.

The area was closely monitored. On the 30th satellite imagery showed increased convective development, and surface data showed decreasing pressures and increasing winds. Subsequent aircraft investigation revealed a minimum sea-level pressure of 1000 mb and surface winds in excess of 35 kn. The first warning on tropical storm Ellis was issued at 0000 July 1. Ellis was in a favorable position at that time, and steady intensification occurred over the next 2 days. For his lifetime, Ellis followed an uncomplicated, classic west-northwestward track at near



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climatological speeds. Post analysis shows that Ellis moved under the influence of the east-southeasterly steering flow on the southern edge of the subtropical midtropospheric ridge. His nearly straight track was primarily because this ridge did not change in intensity or orientation during the period.

Ellis reached typhoon strength on July 2 and maximum intensity of 85 kn on the 3d. Continued intensification was anticipated, but a slow weakening trend was actually observed.

By the time Ellis reached the South China Sea, he had weakened to tropical-storm strength and was a completely exposed low-level circulation. With winds of 54 kn, Ellis made landfall on the Chinese coast on the 6th, 164 mi southwest of Hong Kong.

### SUPERTYPHOON HOPE

The disturbance which eventually developed into the first supertyphoon of 1979 became evident on July 25 on satellite imagery as a focal point of cumulus banding. Future intensification was indicated as the disturbance was situated within an area of strong upper level diffluence associated with the southern periphery of an east-west oriented TUTT.

On the 25th and 26th the depression tracked to the west-northwest, the TUTT axis shifted northward, and strong upper level northeast flow dominated the area. The resultant shear produced by this unidirectional upper level flow displaced the convective activity to the southwest of the surface circulation. By 0600 on the 27th, the center of convective activity was displaced 120 mi southwest of the low-level circulation center. Surface analyses at this time indicated the southwest monsoonal flow was being channeled principally into tropical storm Gordon about 750 mi northwest of the depression. Further weakening was expected. Aircraft investigation on the morning of the 28th showed a surface pressure of 999 mb with 45- to 50-kn winds in the heavy convective activity to the southwest of the surface center.

By the 28th tropical storm Gordon had moved into the Luzon Straits. Due to the orographic blocking of the Philippine land mass, the majority of the strong southwest monsoonal flow was diverted into the depression. This increased low-level inflow coupled with a decreasing upper level shear resulted in a much improved vertical structure with feederband activity developing in the south. On the 29th the depression was upgraded to tropical storm Hope with 35- to 45-kn winds reported in feederband activity. By 0920 a well-defined eye with a central surface pressure of 972 mb and 65- to 70-kn surface winds were reported by aircraft. At 1200 Hope was upgraded to a typhoon.

Aircraft reconnaissance at 2031 indicated a sharp decrease in surface pressure to 961 mb with the temperature/dewpoint data correlating to an equivalent potential temperature ( $O_e$ ) of 359K. An empirically derived forecast aid that relates pressure and  $O_e$  indicates that once the traces

intersect, rapid intensification can be expected within 18 to 30 hr. The intensification equates to a possible mean pressure decrease of 44 mb and a mean windspeed increase of 50 to 60 kn. Typhoon Hope verified this study 36 hr after the intersection occurred; reconnaissance aircraft reported a surface pressure of 898 mb and windspeeds of 100 to 120 kn. By 1200 on the 31st, Hope attained supertyphoon intensity of 130 kn.

Hope entered the Luzon Straits approximately 4 days after tropical storm Gordon. Her compact wind structure and a slight weakening trend were noted as Heng Chun on the southern tip of Taiwan reported sustained winds of 40 kn with gusts to 86 kn as Hope passed 45 mi south of the station. Two persons on the Batanes Islands and one person on Taiwan were killed as a result of the torrential rainfall experienced as Hope tracked through the Luzon Straits.

Typhoon Hope made landfall less than 10 mi north of Hong Kong at 0530 August 2 with maximum sustained winds of 70 kn and gusts to 110 kn. Extensive wind and rain damage, 3 deaths, and over 258 injuries were reported. In Hong Kong harbor 17 ships broke their moorings, and 8 ships collided.

After passage over Hong Kong, Hope moved into southern China and weakened. Although weakened considerably during passage over southeast Asia, Hope did maintain a satellite signature and exited into the northern Bay of Bengal 110 mi southeast of Dacca, Pakistan, on the 6th. Strengthened once again by pre-existing strong southwest monsoonal flow, Hope reintensified on the 7th with maximum sustained winds of 35 kn.

### TYPHOON IRVING

Surges in the southwest monsoon frequent the western North Pacific during the early tropical cyclone season and produce widespread convection from the Malay Peninsula to as far east as Guam. During the same period, the 500-mb monsoon trough fluctuates eastward across the South China Sea and occasionally into the Philippine Sea. By late July, an eastward extension of the midlevel monsoon trough was the main synoptic feature west of Guam. The 500-mb trough axis extended along 15°N from northern Vietnam through the central South China Sea and then eastward into a quasi-stationary low-pressure center over the Philippine Sea.

On August 7 a developing surface circulation was observed at the eastern end of the monsoon trough near 14.1°N, 137.7°E. This weak circulation tracked cyclonically around the eastern periphery of the broad 500-mb low-pressure center in the Philippine Sea. Taking on the characteristics of a monsoon depression, Irving was described in aircraft reconnaissance data received from August 9 to 11 as a weak depression with poor vertical alignment and maximum surface winds 150 to 180 mi west of the surface center. Ship synoptic data during this period indicated that 25- to 35-kn winds extended outward 120 mi south of the surface center.

By the 11th the monsoon surge had weakened and receded westward, leaving a cut-off 500-mb LOW

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over the Philippine Sea in the vicinity of Irving's surface circulation. The vertical alignment between the surface and the 500-mb center improved, and Irving intensified to a tropical storm. Simultaneously, a break developed in the 500-mb subtropical ridge to the north and Irving tracked north-northwestward towards the Ryukyu Islands while intensifying to typhoon strength. Strengthening of the 500-mb ridge southeast of Japan caused typhoon Irving to track over the western East China Sea and accelerate north-northeastward across Korea before merging with an extratropical frontal boundary north of Japan.

Aircraft and synoptic data between the 9th and the 12th indicated that Irving's maximum wind band actually existed 150 to 200 mi west of the large, calm-wind surface center. Irving never became a tight, well-developed tropical cyclone.

Typhoon Irving was the first tropical cyclone to strike Korea this year. Rapidly weakening as he made landfall, Irving spared southern Korea from the destructive typhoon-force winds he had maintained through most of the East China Sea. Korea, however, did receive torrential rains which produced widespread flooding. The hardest hit area was the island of Cheju Do, where 4.3 in. of rain was reported at Cheju. Official estimates reported 150 dead or missing, 1,000 to 2,000 homeless, and approximately \$10 to \$20 million damage to food and agriculture. Some 30 fishing and other small vessels, many of which were anchored in Gamchun Bay near Pusan, were severely damaged by collision, grounding, and capsizing.

### SUPERTYPHOON JUDY

Of all the typhoons of 1979, Judy's significance was only surpassed by supertyphoon Tip. Judy eventually developed into the year's second supertyphoon, but more importantly, she served as a reminder of how rapidly a minor tropical disturbance can develop into a dangerous tropical cyclone.

Surface synoptic data from the beginning to the middle of August showed that the area south and east of Guam was fairly inactive. By August 15, however, synoptic and satellite data revealed a tropical disturbance about 120 mi east-northeast of Truk, which was eventually to become typhoon Judy. No significant pressure falls were observed over the area as the disturbance drifted slowly west-northwestward.

Rapid intensification was not expected, but at 1635 on August 16, less than 10 hr after an aircraft investigation, weather radar at Andersen Air Force Base, Guam, located a well-defined circulation center moving west-northwest toward Guam at 15 kn. The disturbance continued tracking toward Guam and at 1800 the center passed over the Naval Oceanography Command Center on Nimitz Hill, which reported a mean sea-level pressure of 1001 mb and a wind gust of 51 kn. Based on this firsthand information, JTWC issued the first warning on tropical storm Judy at 1900.

Judy intensified steadily while following a nearly climatological west-northwestward track at 10 to 12 kn for the next 24 hr. She reached

typhoon strength at approximately 0300 on the 18th. During the next 36 hr after reaching typhoon strength, Judy's central pressure dropped 69 mb, and she attained supertyphoon intensity by 0000 on the 20th. Her lowest central pressure of 887 mb was measured by reconnaissance aircraft at 2145 on the 19th. Three distinct, concentric wall clouds were also noted at that time. Supertyphoon intensity was maintained until 1500 on the 20th, with gradual weakening thereafter. Judy passed south of Okinawa before beginning to recurve into the East China Sea.

A rapidly intensifying ridge was expected to drive Judy into the Asian mainland south of Shanghai, but just off the Chinese coast she recurved to the northeast. As Judy recurved, she was downgraded to tropical-storm strength, based on land synoptic data. Transition to an extratropical system occurred at 1200 on the 26th, while Judy passed through the Korea Strait.

Judy was still relatively weak while passing over Guam, and damage there was insignificant. Damage to Okinawa was also minimal, even though sustained winds of 40 kn were experienced for 28 hr. Southern Korea did not fare as well; 111 people were killed, over 8,000 homes were inundated, 57 vessels were destroyed, and many thousands of acres of crops were ruined by Judy's torrential rains and strong winds.

### TYPHOON LOLA

Tropical storm Ken and typhoon Lola developed almost concurrently. Satellite imagery on September 1 showed a number of disturbances organized into a line of convection from north of Kadena to south of Marcus. Ken developed from a disturbance just east of Kadena. At this same time, the disturbance which developed into Lola was south of Marcus and appeared quite weak. The largest and most menacing disturbance northwest of Guam did not develop.

During the next 48 hr, the tropical upper tropospheric trough deepened southwestward over the middle disturbance and suppressed its convection. At the same time, it divided the convective line into the two distinct systems, Ken and Lola.

After forming, Ken and Lola began to move in similar recurvature tracks. Ken tracked northward into the Sea of Japan reaching a maximum intensity of 60 kn. Lola intensified into a typhoon and eventually transitioned into an extratropical system over the cooler waters east of Japan.

### TYPHOON MAC

Typhoon Mac developed from a weak surface circulation northeast of Yap during September. This circulation tracked westward, reaching tropical-storm intensity by the 16th. Mac followed the climatological intensification rate for tropical cyclones approaching the Philippines and reached typhoon intensity prior to making landfall. Frictional effects caused the storm to weaken as it tracked across southern Luzon towards the South China Sea. The unexpected development of tropical storm Nancy east of Hai-nan Island influenced Mac's track in the South China Sea.



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Real-time forecasts do not always reflect the actual intensity of a tropical cyclone. Rapid intensification or weakening, peripheral data unavailable due to geographical restrictions, and tight maximum wind bands, which are not initially detected, all reduce the accuracy of intensity estimates provided in tropical-cyclone warnings. These discrepancies often are not recognized until post-analysis, as in the case of typhoon Mac.

Reanalysis of aircraft reconnaissance data for September 16 to 18 shows that most probably Mac reached typhoon intensity by 1800 on the 16th. Aircraft reconnaissance at 0503 on the 16th reported 68 kn at 1,500 ft and 60 kn at the surface. Reconnaissance data at 0810 on the 17th confirmed typhoon intensity by locating 80- to 90-kn surface winds in a 10-mi-wide band tucked under a strong eastern feederband. Mac made landfall prior to the next scheduled aircraft fix with geographical constraints severely reducing peripheral data collection.

Although real-time data were available which indicated Mac had possibly reached typhoon intensity, the isolated reports of strong winds were dismissed as gusts associated with lower velocity sustained winds. Reanalysis of the period between 1800 on the 15th and 0000 on the 18th shows that Mac reached typhoon intensity before weakening from frictional effects over Catanduanes Island on September 18.

The unexpected development of a second tropical cyclone in the South China Sea produced a series of track and intensity modifications in typhoon Mac. On exiting the Philippines, Mac was originally forecast to track west-northwestward into the South China Sea, but instead he began a Fujiwhara interaction with the rapidly developing tropical storm Nancy located near Hai-nan Island. Mac tracked toward the north-northwest, skirting Cubi Point Naval Air Station in the Philippines on his new track toward Hong Kong. Strong anticyclonic outflow from Nancy sheared Mac's convection towards the southwest with aircraft reconnaissance reporting an exposed low-level circulation of 30- to 35-kn intensity on the 20th.

Weak steering currents allowed Nancy to take a cyclonic track across southern Hai-nan Island before heading southwestward into Vietnam. Nancy's southwestward track forced Mac farther north. Mac eventually passed just south of Hong Kong. Ironically, Nancy's development, which caused Mac to track towards Hong Kong, also helped to spare Hong Kong from potential typhoon-force winds. Nancy's upper level outflow, which dominated the South China Sea from September 19 to 23, produced strong vertical shear over Mac and slowed his rate of intensification. Typhoon Mac reached only minimal tropical-storm intensity prior to landfall west of Hong Kong.

### TYPHOON OWEN

Typhoon Owen developed from a disturbance which tracked south of Guam on September 20. Two days later, satellite imagery showed that the system was organizing at the same time that aircraft reconnaissance data indicated a definite surface circulation with a 1000-mb central

pressure.

The system moved on a generally westward track until the 23rd, at which time it unexpectedly turned sharply to the north. Postanalysis revealed a possible reason for this movement. An upper level trough was evident on the 200-mb analysis just west of the cyclone. Southerly winds of 50 kn were observed on the eastern periphery of the trough. Considerable vertical shear existed in the layer from 500 mb to 200 mb. It appeared that the steering and depth of this upper level trough rather than the 500-mb steering was the dominant feature in Owen's movement. Under its influence, Owen tracked generally northward throughout his lifetime, although undergoing major changes in speed. He slowed to a barely perceptible 1-kn movement just northeast of Okinawa (at the latitude of the subtropical ridge axis) and then dramatically accelerated to 24 kn 36 hr later under vertically consistent westerly steering. At this time, Owen made landfall near Osaka, Japan, and began weakening in intensity while still accelerating to 47 kn. Eventually, he transitioned into an extratropical system but not before reaching a maximum intensity of 110 kn on the 26th.

### TYPHOON SARAH

Typhoon Sarah was spawned in the monsoonal trough during late September. During the last few days of the month, the circulation meandered slowly toward Luzon under the influence of the southwest monsoon, then looped over Luzon during the first 3 days of October as a midtropospheric short-wave trough moved eastward north of Luzon. Once the short-wave trough had moved east of the circulation, the northeasterly flow intensified and became more of an influence as the circulation finished its loop and began a south-southwestward track.

Sarah intensified to typhoon strength while tracking southward, which is quite unusual for a tropical cyclone. Several aircraft reconnaissance flights reported that Sarah had attained typhoon strength, even though her cloud structure was not well organized.

During the first several days of October, when Sarah was slowly developing to typhoon strength and moving south, Palawan Island and the central Philippines were battered by high winds and rain. These areas were inundated by flooding and landslides, which caused massive crop damage and death. Many villages were cut off from any source of food, fresh water, and other necessities for survival. Four deaths were attributed to Sarah. On the 8th, Sarah finally began to track westward, and the weather cleared over Palawan Island and the central Philippines. Aircraft reconnaissance early on the 9th reported that Sarah's structure had become better organized. Previous reports had shown that Sarah was not vertically aligned, but on the 9th the midlevel center had become vertically aligned with the surface center, upper level outflow improved, and Sarah's intensity increased to 110 kn. In contrast to her unusual origin, Sarah had become a most impressive storm.



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Sarah reached peak intensity early on the 10th, then began to weaken slowly as she tracked west-northwestward. She continued on a west-northwestward track until dissipation over Vietnam on the 17th. After 20 days, she dissipated within 300 mi of her origin as a monsoon depression on October 28.

### SUPERTYPHOON TIP

Supertyphoon Tip was the most significant typhoon of the 1979 season and possibly the most significant tropical cyclone this century. Forty aircraft reconnaissance missions were flown on Tip, which produced 60 fixes, and thus made it one of the most closely watched cyclones in recent memory. Aircraft and synoptic data showed that Tip achieved the lowest sea-level pressure ever observed in a tropical cyclone (870 mb) and also had the largest circulation pattern on record (nearly 1,200 mi in diameter).

Satellite and synoptic data during the early part of October revealed an active monsoon trough that extended from the Marshall Islands through the Caroline Islands to Luzon. Three distinct circulations developed in this trough: one near Manila, which would become typhoon Sarah; another southwest of Guam, which would become tropical storm Roger; and the last between Truk and Ponape, which was destined to become supertyphoon Tip.

The surface analysis for 0000 on the 3rd showed the three circulations in the monsoon trough with strong cross-equatorial flow, most of which was feeding into tropical storm Roger. This situation was enhanced by an extratropical trough north of Roger over southern Japan. The split in the surface flow pattern near Guam tended to keep Tip from developing rapidly while southeast of Guam. The satellite signature of the tropical disturbance near Truk continued to show improvement despite an initially unfavorable upper air pattern. At 0900 on the 4th reconnaissance aircraft found a closed surface circulation about 120 mi southeast of Truk with a mean sea-level pressure of 1003.9 mb and a maximum observed surface wind of 25 kn.

On the 5th reconnaissance aircraft fixed the disturbance about 100 mi southeast of the previous position. Although the surface pressure had not dropped significantly, the observed surface winds had increased, and as a result the tropical depression was upgraded to tropical storm Tip at 0000 on the 6th.

Tip moved erratically until the 8th. He first executed a cyclonic loop southeast of Truk, then accelerated to the northwest, only to stall and meander to a position south of Truk. It was difficult to keep track of the surface position during this period. The best track is based almost entirely on aircraft surface positions, because the satellite fixes were based on upper level outflow centers, and even the 700-mb center, as observed by aircraft reconnaissance, was considerably displaced from the surface center. Changes in the surface wind direction reported by Truk assisted JTWC in monitoring tropical storm Tip during this period of erratic behavior.

On the 8th the expected northwesterly

movement began. Roger was far to the north becoming extratropical, and the southerly winds that had been flowing north began to veer toward Tip. The upper air outflow channel improved. The 0208 aircraft fix confirmed that Tip was heading toward Guam at approximately 13 kn. The minimum sea-level pressure had dropped to 995 mb, and the surface winds were 40 kn.

Tip continued to intensify and accelerate toward Guam. Six hours before expected landfall, however, reconnaissance aircraft and radar positions from Andersen Air Force Base showed that he had turned westward. Tip actually passed south of Guam, reaching the closest point of approach about 25 mi south of southern end of the island at 1015 on the 9th. Maximum winds of 48 kn with gusts to 64 kn were recorded at the Naval Oceanography Command Center on Nimitz Hill. Andersen Air Force Base recorded a total of 9.1 in of rain.

Shortly after passing Guam, Tip reached typhoon strength and continued on a basic west-northwestward track. The analyses over the next few days showed that typhoon Tip was moving into an area of strong upper level divergence which covered most of the western Pacific. Rapid intensification was forecast, but it was much more rapid than expected as the pressure between the 9th and 11th dropped 98 mb to 898 mb. Tip reached supertyphoon strength at that time with maximum winds of 130 kn reported by aircraft reconnaissance. The circulation pattern associated with typhoon Tip had increased to a diameter of 1,200 mi, which exceeds the previous record of 720 mi set by typhoon Marge in August 1951.

Supertyphoon Tip intensified still further, and at 0353 on the 12th a reconnaissance aircraft recorded the lowest sea-level pressure ever observed in a tropical cyclone: 870 mb. This was 6 mb lower than the previous record set by supertyphoon June in November 1975. The 700-mb height was 1,944 m, and the 700-mb temperature within the eye was an exceptionally high 30°C. The Aerial Reconnaissance Weather Officer (ARWO) reported that an unusual feature was the spiral striations on the wall cloud. It looked like a double helix spiraling from the base of the wall cloud to the top, making about two revolutions in climbing. Tip maintained supertyphoon strength for the next 54 hr while moving northwestward at 3 to 7 kn. An estimated maximum wind of 165 kn was reached at 0600 on the 12th.

From the 13th to the 17th, the radius of surface and gradient-level 30-kn or greater winds extended over 600 mi from Tip's center. The radius of over 50-kn winds was over 150 mi. Aircraft reconnaissance data likewise showed that 700-mb winds of 105 kn existed more than 120 mi from Tip's center during this period.

After the 17th Tip began to weaken as the large circulation pattern began to shrink and turned northward. By the 18th Tip was accelerating to the northeast. During recurvature, Tip passed within 35 mi of Kadena Air Base on Okinawa, which reported maximum sustained winds of 38 kn with gusts to 61 kn.

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Early on the 19th Tip made landfall on the Japanese island of Honshu, about 60 mi south of Osaka, with maximum winds of 70 kn. Synoptic and radar data from stations on the island showed that Tip had a speed over 45 kn as he passed to the north of Tokyo and eastward into the Pacific Ocean. Tip became extratropical over Honshu.

The extratropical low-pressure center maintained winds of storm force (48 kn) until the 21st, when it moved to a position east of Kamchatka and finally began to fill rapidly.

The majority of the severe damage occurred in Japan, where the agricultural and fishing industries sustained losses into the millions of dollars. Flooding from Tip's rains also breached a fuel retaining wall at Camp Fuji, west-northwest of Yokosuka. The fuel caught fire causing 68 casualties, including 11 deaths, among the U.S. Marines stationed there.

Considering the size and strength of supertyphoon Tip, the western Pacific fared well. Luckily, maximum intensity was reached while the system was still far from any inhabited areas, but the potential for mass destruction was always there. From a strictly meteorological standpoint, Tip was also a thing of great beauty. Another ARWO stated upon returning from a mission that the second penetration was beyond description. This is unquestionably the most awe-inspiring storm I have ever observed....The moon had risen sufficiently to shine into the eye through an 8-mi clear area at the top of the eyewall. To say it was spectacular is totally inadequate...'awesome' is a little closer.

### SUPERTYPHOON VERA

Vera, the fourth and final supertyphoon of the season, originated in an active near-equatorial trough which extended through the Caroline and Marshall Islands. Vera was first analyzed as a weak surface circulation 100 mi southeast of Ponape on October 27.

Synoptic data on the 30th indicated that low-level inflow was now concentrated into the developing cyclone. The convective activity increased rapidly on the 31st. On November 1 aircraft reconnaissance found an ill-defined circulation center with a central pressure of 1004 mb. On November 2 rapid intensification occurred, and Vera was upgraded to a tropical storm. She reached typhoon strength by the 3rd, while 190 mi south-southeast of Yap.

From the first warning until her approach to the Philippines northeast of Samar, Vera moved on a virtually straight west-northwest track. She continued to intensify during her west-northwestward acceleration and reached supertyphoon intensity only 18 hr after being upgraded to a typhoon. Reconnaissance aircraft reports indicated Vera maintained supertyphoon intensity for over 24 hr before weakening as she approached Catanduanes Island. The peak wind reported on Catanduanes Island was 50 kn at 1200 on the 5th as Vera passed just off the coast. Vera made landfall north of Tarigtig Point packing winds of 90 kn.

After landfall, the onset of enhanced

low-level northeasterly flow over the Taiwan Straits coupled with strong upper-level southwesterlies over the Philippines resulted in vertical disorganization and rapid weakening of Vera. Radar and aircraft reports indicated the low-level circulation continued to track to the northwest over the Cagayan River Valley and exited into the South China Sea near Culili Point south of Laoag. The upper level circulation sheared off near Tuguegarao and was tracked using satellite imagery northward over Aparri then east-northeastward into the Philippine Sea. Surface synoptic and ship reports at 0000 on the 7th showed a secondary surface center near Baguio. At the same time, the primary center was crossing the Cordillera central mountain range 95 mi to the north.

After exiting into the South China Sea, the strong northeast monsoon flow accelerated Vera southwestward, and on the 7th she was downgraded to a tropical depression.

### TYPHOON ABBY

Abby, the last typhoon of the season, developed over the Marshall Islands during early December. Abby proved to be an unusual cyclone in several ways. Throughout much of her existence, she was not vertically aligned. Aircraft reconnaissance located the midlevel circulation center displaced as much as 55 mi from the surface center. At one point, two centers were identified. In addition, Abby fluctuated between tropical-depression and tropical-storm strength several times before reaching typhoon strength 10 days after formation.

On the 2nd aircraft reconnaissance observed surface winds of 45 kn and a sea-level pressure of 996 mb. The surface and 700-mb centers were displaced by 12 mi, but Abby continued to intensify to 60 kn on the 4th, while increasing the displacement between the surface and 700-mb centers.

All available information indicated continued intensification as Abby tracked towards Guam. However, the opposite occurred. As Abby moved west of Truk, she weakened to less than tropical-storm strength. By the 7th Abby reintensified to minimum tropical-storm strength as she moved westward. During the 8th Abby once again weakened to less than tropical-storm strength and increased her forward speed of movement.

Abby was not vertically aligned from the 1st through the 9th. On the 9th aircraft reconnaissance observed that Abby possessed multiple 700-mb centers, but a few hours later only one well-organized, intensifying center was found. The following is a storm mission summary by the ARWO, who made the double penetration into Abby: "This mission started out as a normal fix but ended up being unusual. On our way inbound for the supplemental fix, there was no problem reading winds at flight level or on the surface. Winds were 20 to 25 kn the entire way. An area of thunderstorm activity became visible ahead of us. As we neared it, the doppler indicated that the 700-mb center was in the middle of the

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thunderstorm. Not eager to go find this out, we went back to find the surface center. Enroute, we saw surface winds in excess of 35 kn which led us to a fairly disorganized surface center just east of the main thunderstorm. Over it was a fairly small light and variable wind center. Radar showed little curvature in the shower pattern, but the surface winds did indicate a weak circulation existed at this first position. No weather existed to the east of our first fix, and this position was right on the JTWC forecast track. On the second fix, things had changed. As we came in the second time, we encountered considerable precipitation. Doppler and search radar indicated a center with a possible wall cloud forming considerably west of our first fix. Winds were stronger at flight level and we penetrated a wall cloud of about 80-percent coverage. When we broke through, we encountered our strongest winds at flight level. The surface center was under the eastern wall cloud with a small light and variable wind center at 700 mb centered in the eye. Lightning started in the eastern wall cloud and spread around the eye. Our drop was made as close to the surface center as was possible and indicated a good 988-mb sea-level pressure. The

700-mb height was down 72 m from the first fix. The positions were 85 mi apart causing me to believe that two centers existed for a short time with the latter becoming the predominant one. The pressure profile seems to indicate this theory...."

Satellite imagery at 0144 on the 9th also indicated the possible existence of multiple outflow centers. While Abby was reorganizing into a single center, she began to reintensify to tropical-storm intensity, which made her the last typhoon of the decade.

Typically, recurving typhoons have their maximum intensities either before or less than 12 hr after recurvature. Abby, however, did not reach maximum intensity until 36 hr after recurvature. By the 13th Abby reached maximum intensity of 110 kn with a minimum sea-level pressure of 951 mb. As she continued toward the east-northeast, Abby approached a regime of very strong westerlies in the middle and upper troposphere. The strong westerlies induced Abby's acceleration and rapid weakening. Abby dissipated on the 14th due to strong vertical shear between the surface and middle levels.



Table 1.--Western North Pacific significant tropical cyclones, 1979

<u>CYCLONE</u>	<u>TYPE</u>	<u>NAME</u>	<u>PERIOD OF WARNING</u>	<u>CALENDAR DAYS OF WARNING</u>	<u>MAX SFC WIND</u>	<u>MIN OBS SLP</u>	<u>NUMBER OF WARNINGS</u>	<u>DISTANCE TRAVELLED</u>
01	TY	ALICE	01 JAN-14 JAN	14	110	930	51	2597
02	TY	BESS	20 MAR-25 MAR	6	90	958	21	1804
03	TY	CECIL	11 APR-20 APR	10	80	965	40	2535
04	TS	DOT	10 MAY-16 MAY	7	40	984	24	2876
05	TD	TD-05	23 MAY-24 MAY	2	30	998	6	2170
06	TY	ELLIS	01 JUL-06 JUL	6	85	955	22	1612
07	TS	FAYE	01 JUL-06 JUL	6	40	998	20	1837
08	TD	TD-08	24 JUL-25 JUL	2	20	1004	5	1264
09	ST	HOPE	27 JUL-03 AUG	10	130	898	33	3928
10	TS	GORDON	26 JUL-29 JUL	4	60	980	13	1058
11	TD	TD-11	03 AUG-06 AUG	4	25	997	14	1088
12	TY	IRVING	09 AUG-18 AUG	10	90	954	38	2732
13	ST	JUDY	16 AUG-26 AUG	11	135	887	39	2502
14	TD	TD-14	18 AUG-20 AUG	3	20	1006	9	605
15	TS	KEN	01 SEP-04 SEP	5	60	985	13	1418
16	TY	LOLA	02 SEP-08 SEP	7	90	950	23	1298
17	TY	MAC	15 SEP-24 SEP	10	70	984	35	1831
18	TS	NANCY	19 SEP-22 SEP	4	45	993	14	528
19	TY	OWEN	22 SEP-01 OCT	10	110	918	37	2151
20	TS	PAMELA	25 SEP-26 SEP	3	45	1002	6	984
21	TS	ROGER	03 OCT-07 OCT	6	45	985	16	1920
22	TY	SARAH	04 OCT-15 OCT	12	110	929	43	1194
23	ST	TIP	05 OCT-19 OCT	16	165	870	60	3972
24	ST	VERA	02 NOV-07 NOV	6	140	915	23	1868
25	TS	WAYNE	08 NOV-13 NOV	6	50	990	22	1559
26	TD	TD-26	01 DEC-02 DEC	2	30	998	6	1070
27	TY	ABBY	01 DEC-14 DEC	14	110	951	52	4044
28	TS	BEN	21 DEC-23 DEC	3	60	990	10	2245
1979 TOTALS				149*			695	

\*OVERLAPPING DAYS INCLUDED ONLY ONCE IN SUM.

Table 2. --Frequency of typhoons by month and year

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
AVERAGE (1945-58)	0.4	0.1	0.3	0.4	0.7	1.1	2.0	2.9	3.2	2.4	2.0	0.9	16.3
1959	0	0	0	1	0	0	1	5	3	3	2	2	17
1960	0	0	0	1	0	2	2	8	0	4	1	1	19
1961	0	0	1	0	2	1	3	3	5	3	1	1	25
1962	0	0	0	1	2	0	5	7	2	4	3	0	24
1963	0	0	0	1	1	2	3	3	3	4	0	2	19
1964	0	0	0	0	2	2	6	3	5	3	4	1	26
1965	1	0	0	1	2	2	4	3	5	2	1	0	21
1966	0	0	0	1	2	1	3	6	4	2	0	1	26
1967	0	0	1	1	0	1	3	4	4	3	3	0	23
1968	0	0	0	1	1	1	1	4	3	5	4	0	25
1969	1	0	0	1	0	0	2	3	2	3	1	0	13
1970	0	1	0	0	0	1	0	4	2	3	1	0	12
1971	0	0	0	3	1	2	6	3	0	3	1	0	24
1972	1	0	0	0	1	1	4	4	3	4	2	2	22
1973	0	0	0	0	0	0	4	2	2	4	0	0	12
1974	0	0	0	0	1	2	1	2	3	4	2	0	14
1975	1	0	0	0	0	0	1	3	4	3	2	0	15
1976	1	0	0	1	2	2	2	1	4	1	1	0	15
1977	0	0	0	0	0	0	3	0	2	3	2	1	11
1978	0	0	0	1	0	0	3	2	4	3	2	0	15
1979	1	0	1	1	0	0	2	2	2	2	1	1	13
AVERAGE (1959-78)	0.25	0.05	0.10	0.70	0.85	0.95	2.85	3.55	3.25	3.20	1.65	0.55	17.95

JTWC

Table 3. --Frequency of tropical storms and typhoons by month and year

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
AVERAGE (1945-58)	0.4	0.1	0.4	0.5	0.8	1.3	3.0	3.9	4.1	3.3	2.7	1.1	21.6
1959	0	1	1	1	0	0	3	6	6	4	2	2	26
1960	0	0	0	1	1	3	3	10	3	4	1	1	27
1961	1	1	1	1	3	2	5	4	6	5	1	1	31
1962	0	1	0	1	2	0	6	7	3	5	3	2	30
1963	0	0	0	1	1	3	4	3	5	5	0	3	25
1964	0	0	0	0	2	2	7	9	7	6	6	1	40
1965	2	2	1	1	2	3	5	6	7	2	2	1	34
1966	0	0	0	1	2	1	5	8	7	3	2	1	30
1967	1	0	2	1	1	1	6	8	7	4	3	1	35
1968	0	0	0	1	1	1	3	8	3	6	4	0	27
1969	1	0	1	1	0	0	3	4	3	3	2	1	19
1970	0	1	0	0	0	2	2	6	4	5	4	0	24
1971	1	0	1	3	4	2	8	4	6	4	2	0	35
1972	1	0	0	0	1	3	6	5	4	5	2	3	30
1973	0	0	0	0	0	0	7	5	2	4	3	0	21
1974	1	0	1	1	1	4	4	5	5	4	4	2	32
1975	1	0	0	0	0	0	2	4	5	5	3	0	20
1976	1	1	0	2	2	2	4	4	5	1	1	2	25
1977	0	0	1	0	0	1	4	1	5	4	2	1	19
1978	1	0	0	1	0	3	4	7	5	4	3	0	28
1979	1	0	1	1	1	0	4	2	6	3	2	2	23
AVERAGE (1959-78)	0.55	0.35	0.45	0.85	1.15	1.65	4.55	5.70	4.90	4.15	2.50	1.10	27.90

JTWC

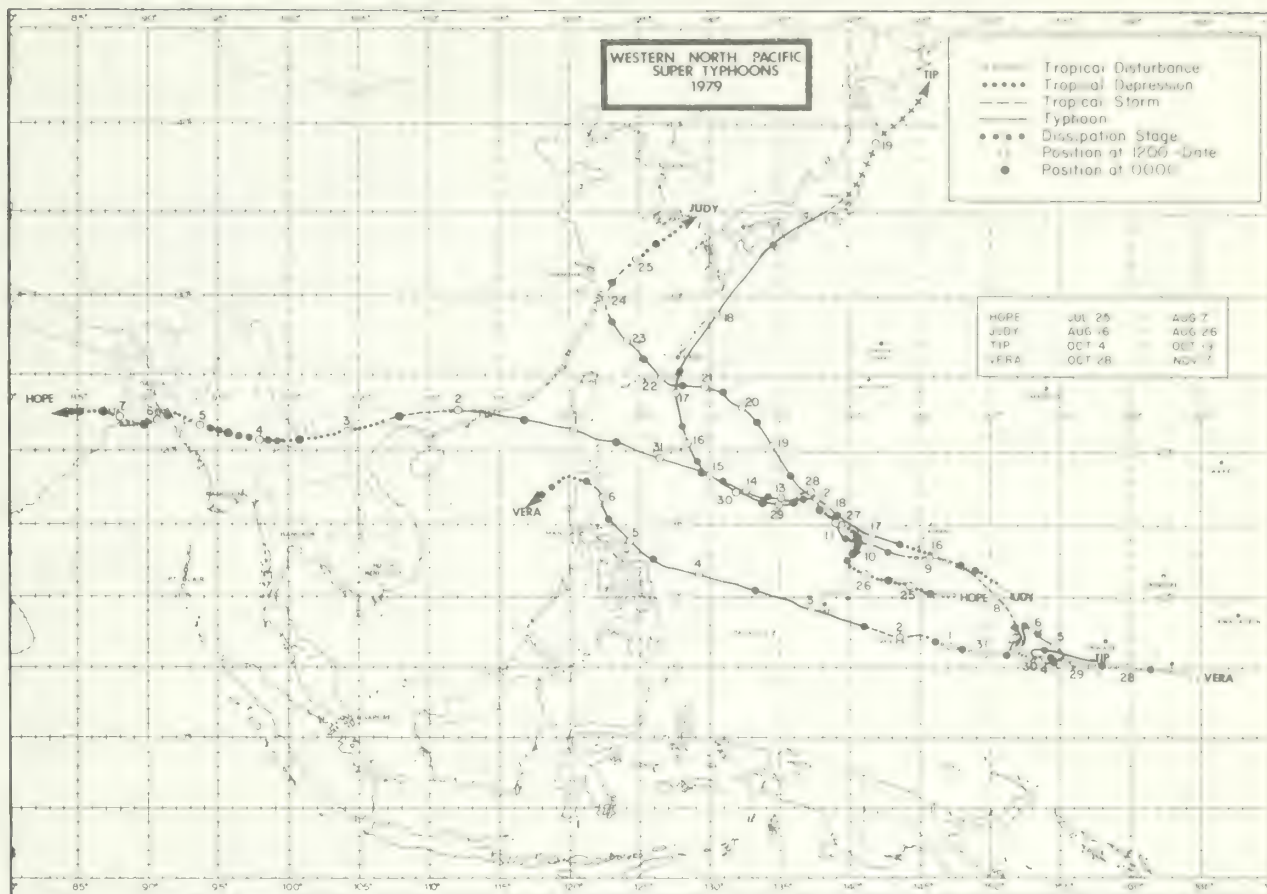


Figure 1.---Tracks of western North Pacific supertyphoons, 1979.



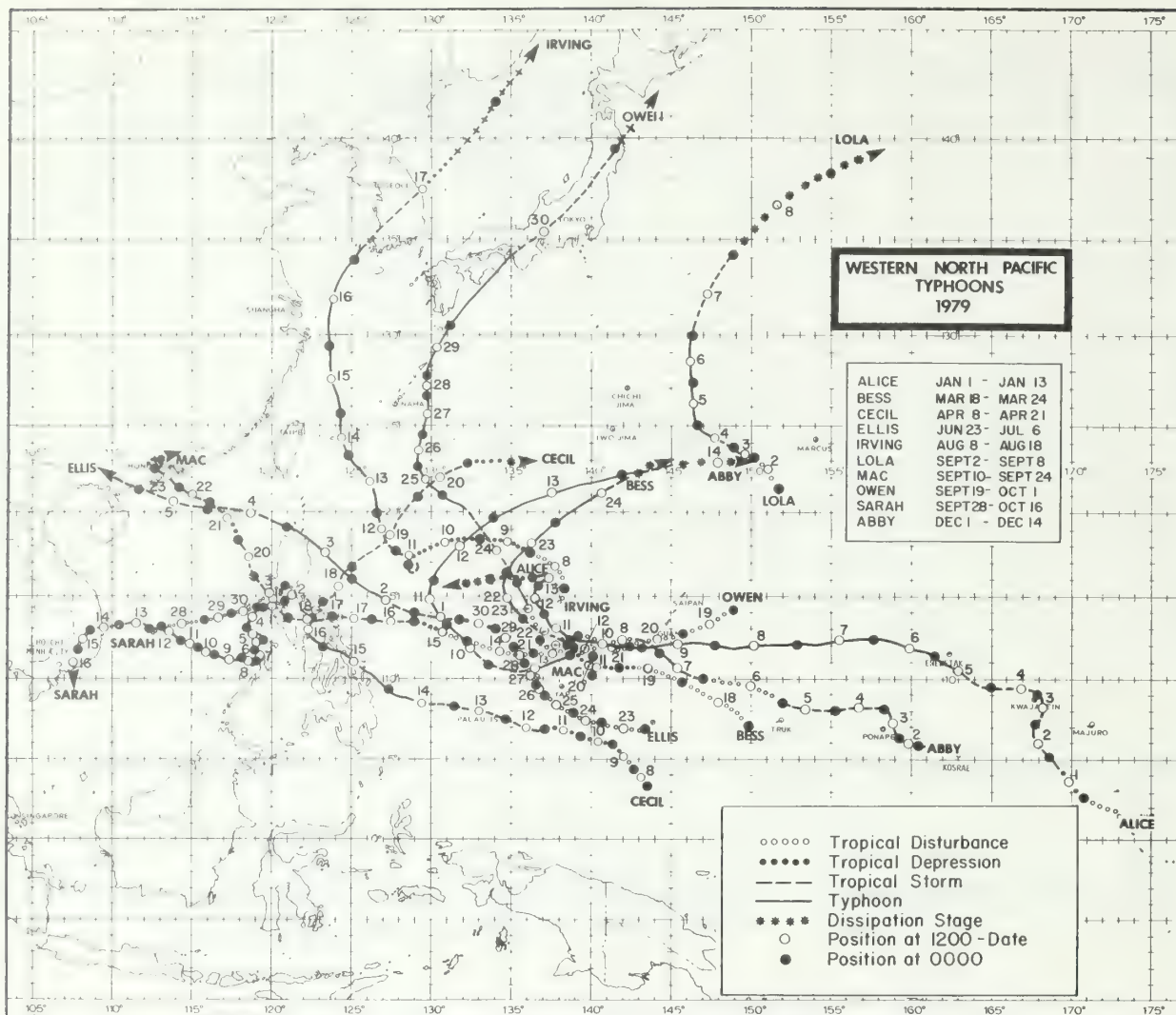


Figure 2. ---Tracks of western North Pacific typhoons, 1979.

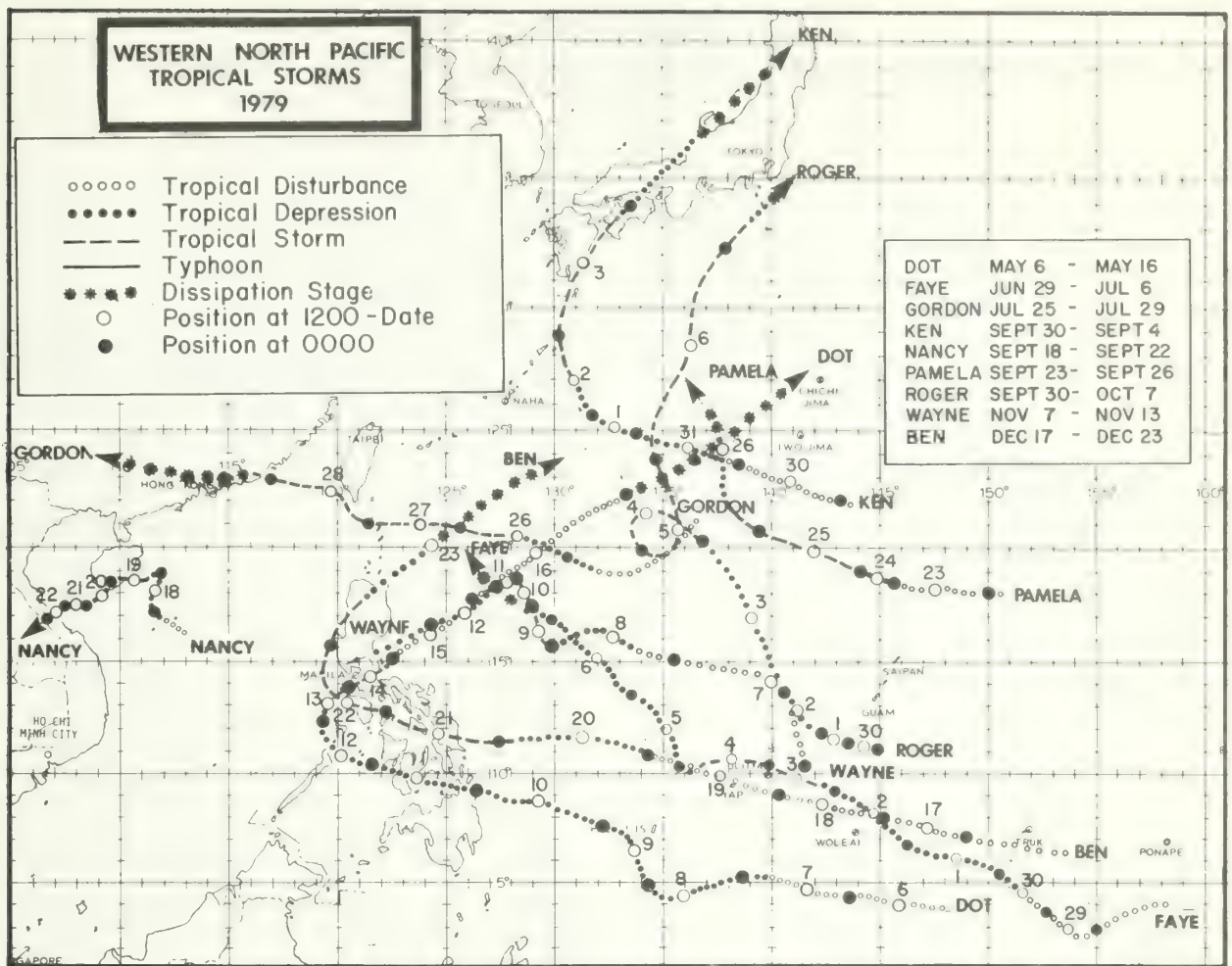


Figure 3. ---Tracks of western North Pacific tropical cyclones, 1979.

LATE REPORTS  
GENERAL SUMMARY OF NATIONAL FLOOD EVENTS  
YEAR 1978

Jose O. Marrero, Office of Hydrology

The total flood-related losses for the year were estimated to be near \$1 billion, and at least 120 lives lost.

The remnants of tropical storm Amelia brought great flooding and rainfall to central Texas during July 31 to August 4. Damage estimates were expected to be near \$100 million. Thirty-three lives were lost as a result of flash flooding, ranking the central Texas flooding as the top event for 1978 flood year.

In California some 20 lives were lost due to flash flooding in the Big Tunjunga Canyon area -- monetary losses around \$80 million.

A total of 10 lives were lost and damages estimated at \$25 million in Arkansas.

JANUARY

January was a fairly normal month rainfall-wise in the eastern Gulf Basin, until the middle of the fourth week. Heavy rain occurred from the 24th through the morning of the 26th. During this period the rainfall pattern ranged from over 9 inches in the immediate Gulf Coast area with a fairly rapid gradient northward to near 1 to 2 inches in the Tupelo area of Mississippi.

Severe flooding occurred in a small area in southwestern Georgia between Columbus and Bainbridge, where the flow on several streams was reported by the U. S. Geological Survey to be equal to that of a 25-year flood.

Flooding occurred near month end in southern Alabama and in the adjacent area of northwestern Florida. In the Conecuh River Basin in southeastern Alabama, monthly mean flow at the index station at Brontley increased sharply and was 3 times the average for the month.

In extreme northwestern Florida, where rainfall amounts as high as 10 inches were reported from Pensacola, rapid runoff resulted in flooding along many streams. Losses were estimated to be near \$3.3 million.

In West Virginia, in the Ohio Basin area, rapid runoff from rain and melting snow on the 27th and 28th caused many streams throughout the state to reach or slightly exceed flood stages. The most serious flooding occurred along the Kanawha and Lower Lugo Fork rivers. Total damage along the Little Kanawha will exceed \$700,000.

In South Carolina, as a result of 2 to 3 times the normal monthly rainfall, flooding occurred at 17 of the 21 river stage reporting stations. Moderate flooding occurred at lower Broad River and Congaree River below Columbia. Flooding of lowlands and swamp-

land developed along the Pee Dee River in northeastern South Carolina. On the Saluda River, Lake Greenwood did not fill but flooding was reported. Damage was estimated near \$60,000, however, savings were estimated at half a million dollars due to excellent warnings.

Precipitation in January was much above normal over most of West Virginia. Most of the precipitation occurred in the form of snow over the northern half of the area. Monthly totals ranged up to near 89.5 inches at Snowshoe, WV. A record 24-hour snowfall of 15.8 inches was established at Charlestown, WV, where the January monthly total of 39.5 inches exceeded the January record of 22.2 inches set in 1977. Streamflow was near normal until the last week of the month when heavy rain and snowmelt brought streamflow to much above normal. On the 19th and 20th heavy snow fell over most of West Virginia, resulting in a snowcover of 1 to 3 feet. The most significant period of precipitation occurred when rain began during the afternoon of the 24th and continued until the very early hours of the 26th. The heaviest rain fell during the early morning hours of the 25th and again during the late afternoon and evening hours. Runoff was slow to begin as the rain fell on the heavy snowcover, but temperatures rose rapidly into the low to mid 50's accompanied by strong winds. This caused a rapid increase in snowmelt which resulted in ten rivers exceeding flood stage. However, a surge of Arctic air moved rapidly over the area bringing a halt to snowmelt. The most serious flooding occurred along the Little Kanawha and Lower Lugo Fork Rivers. No death or injuries due to flooding were reported.

In New York a giant ice jam formed at Prattsville on the Schoharie Creek, resulting in the second highest stage of record, 17.7 feet, at least, and the village was inundated by 3 feet of water. Other minor flood problems occurred, mostly due to ice jams on streams and rivers.

Locally heavy rains fell in the Tucson, AZ area, creating a rise on rivers. Two deaths were attributed to a minor rise on the Rillito Creek, apparently as the result of unsafe actions.

Major flooding was experienced on the San Lorenzo River in Santa Cruz County, California. Damage reported by the county was estimated at \$1.6 million and one death reported.

Minor flooding was reported from the Atlantic Drainage to the Pacific and Alaska, mostly due to ice jamming in the colder regions. Flood losses for the month of January total just over \$6.5 million with 3 fatalities reported.



# LATE REPORTS

## GENERAL SUMMARY OF NATIONAL FLOOD EVENTS

### FEBRUARY

In California, the heavy rains that began in mid-December continued through February, causing more floods and mudslides, great amounts of highway and property damage, and considerable loss of life.

On the 10th, a flash flood in Big Tujunga Canyon in Angeles National Forest, 50 miles north of Los Angeles, destroyed the hamlet of Hidden Springs and damaged three nearby camping areas. Twenty persons were reported dead as a result of that flood. About 1,200 persons were reported to have been evacuated because of the flooding and mudslides in the Los Angeles area and in the San Joaquin Valley.

Major flooding occurred along the Salinas and Pajaro Rivers with damage estimates in excess of \$20 million. Some limited evacuation was reported, but the heaviest damage was to agricultural areas. A crest of 15.1 feet at Arsojo Seco and 18.6 feet was recorded on the Serbinas River. Flood stage at both locations is 11 feet.

In northern Florida, mean flow in Suwanee River at Branford increased seasonally as a result of runoff from midmonth's rains, and was above the normal range. Extensive flooding was reported along the Chipola River, mainly in the lakes area which rose 7 feet above the flood stage of 12 feet at Dead Lake. Losses were estimated at \$423,823.

Surface soil conditions in southeastern Texas continued wet during the month. Rainfall was reported almost daily the first three weeks of the month. The greatest daily amounts fell from the 7th to the 8th.

However, on the 8th there was widespread rainfall across the entire southeast area with amounts from .5 to 2 inches reported. Village Creek was out of banks from the 2d to the 20th with a peak of 13.86 feet on the 6th; flood stage is 12 feet at Kauntze; Pine Island Bayou was out of banks from the 1st to the 6th at Sour Lake with a peak stage of 24.7 feet on the 1st. (flood stage 22 feet). This rise was due to rainfall from previous month. A second rise occurred from the 7th to the 22d with a peak stage of 23.86 feet on the 15th.

### MARCH

Major flooding occurred in parts of central and eastern Nebraska from the 12th through the 26th. The most serious flooding hit the Platte River Basin between North Bend to Ashland. Specifically, the Union Dike break near Valley, NE, in extreme northwestern Douglas County turned the flooding into a major state and federal disaster.

One life was lost and estimated damages were reported to be as high as \$240 million.

Steady rains on the 11th and 12th coupled with temperatures in the upper 30's and 40's began to melt the heavy snowcover and started the rapid runoff into the streams and rivers. Flooding aggravated by ice jamming hit the South Loup, the Lower Mid Loup and

the North Loup Rivers and around St. Paul shortly thereafter. Extensive overflows resulted along these rivers; at some areas the highest stages recorded since the great floods of the late 60's and late 40's.

A series of major storms in late February and early March caused severe flooding in the Phoenix and Flagstaff areas in Arizona.

Approximately \$18 million damage was reported and 1 life lost. The President declared 8 counties disaster areas. Record flow at Littlefield in northwestern Arizona, was reported in the Virgin River, which was the highest for March in 49 years.

Flooding occurred on the White, Black, Cache, and St. Francis Rivers in March following above normal rainfall across northern Arkansas and southern Missouri.

Flooding in Indiana was widespread during March. The most serious flooding was along the St. Mary's and Maumee Rivers in Adams and Allen Counties. Estimated damage of nearly \$35 million was reported. The river stage at Decatur was the highest since 1959, while at Fort Wayne it was the second highest on record. The St. Mary's at Decatur and Maumee River at Fort Wayne were above flood stage for more than two weeks.

Flooding along the Elkhart River at Goshen was the greatest since 1954. The Elkhart River remained above flood stage over one week.

Flooding along the Kankakee River was greater than in 1976. Estimated damage reported at \$1 million. Extensive lowland flooding occurred in the Wabash River Basin.

Mild temperatures the second week of March caused rapid snowmelt along the White River in south central South Dakota. An ice jam developed near the mouth of the river on the 13th and 14th causing rapid rises at the gage near Oacoma, SD.

Minimal property loss resulted because only agricultural land was flooded. At Oacoma, the White River crested at about 23 feet, which is a flood record.

Minor flooding occurred in eastern and central parts of Kansas, in the lower half of the Skunk River Basin of Iowa, in South Dakota along the Bad River Basin, and along the Cannonball River in southwestern North Dakota, as a result of either runoff from rain and melting ice and snow, or both.

### APRIL

The flooding which began near the end of March in the Red River of the North near West Fargo, ND continued downstream in April, and expanded to include tributaries in Minnesota. The flood along the Red River from Wahpeton, ND to Breckenridge, MN northward through Fargo/Moorhead metropolitan area to Halstad, MN, was determined to be the third highest of record. The President declared the Red River Valley a major

## LATE REPORTS

# GENERAL SUMMARY OF NATIONAL FLOOD EVENTS

federal disaster area, which included ten Minnesota counties and six North Dakota counties. However, in the greater Grand Fork metropolitan area the event became the flood of the century, exceeding all but the historical floods of 1882 and 1897. Further downstream at Oslo, MN, the Red River exceeded all known flooding, including the flood of 1897. At Drayton, ND, it also exceeded the flood of 1897. Major flooding became widespread over almost all of the basin and a number of tributaries reached record or near record levels. Estimated damages to private and public property was \$13 million and 2 lives lost, however, accurate flood forecast prevented nearly \$30 million in damages.

Severe flooding along the Roanoke River in Virginia near the end of the month forced many residents to evacuate their homes. The flooding in the upper Roanoke Valley was the worst since the record Hurricane Agnes flood of 1972, and about \$10 million in damage was reported. The river at Roanoke crested about 0.5 foot below the record.

Flooding in Indiana occurred along the Wabash, White, Kankakee, Elkhart, Maumee, and St. Mary's Rivers. The most serious flooding occurred along the Kankakee River in the Shelby/Schneider area. Approximately 40 families were evacuated from the Schneider area because of levee failures. Lowland flooding continued along the Wabash River and minor flooding occurred along the St. Mary's, Maumee, and Elkhart Rivers. Little immediate damage occurred from this flooding, however, the long delays in planting of agricultural lands caused reduced yields of crops.

Flooding continued on the Milk River which began in late March and continued into April. Total damage was estimated at \$1.5 million.

There were two periods of flooding in Iowa during April; one around the 10th and the other from the 17th to 21st. The flooding was due to a series of rains which produced 2 to 3 inches of rainfall from southwest across central Des Moines River Basin into the upper Iowa and Cedar Basins. Flood crests were generally 1 to 3 feet above flood stages, although the estimated crest near Hamburg during the second period was 7 feet above the flood stage. Flood damages were minor, affecting mostly agricultural land.

The St. Joseph River at Montpelier, OH, and the Tiffin River at Stryker, OH, continued over bankfull from March. A few localized thunderstorms put the Blanchard River near Flood stage at Findlay in the second week of April. Two drownings were reported.

### MAY

Rainfall over Louisiana varied from below normal over southwest to above normal over north and southeast. Amounts of rainfall ranged from 14.16 inches at Abita Springs to .08 inches at Lake Arthur.

On the 3d, the New Orleans metropolitan area experienced widespread severe urban flooding. Actual losses

were near \$100 million. Four persons were killed; 3 drownings and one electrocution. Areas of major damages reported included Orleans, Jefferson, and St. Bernard Parishes.

During the 6th-7th, urban flooding was reported at a number of communities across northern Louisiana following heavy rainfall. One life was lost due to drowning in the Shreveport area. Evacuations were required in portions of Mooretown, where the water was reported to be window high of homes. Areas of greatest damage included Caddo, Bossier, Bienville, Union, and Morehouse Parishes. Damages estimated in the several millions. Most of the area received between 4 and 6 inches of rain during the 17th-19th. Extreme rainfall amounts were reported at Joliet, 6.6 inches, and Lake Deer with 7.6 inches.

Severe flooding occurred in southeastern Montana. Flooding began on the tributaries of the Bighorn and Little Bighorn Rivers on the 18th. By the 19th major flooding was noted along the entire Bighorn and Little Bighorn Rivers, as well as the upper reaches of the Tongue and Powder Rivers in Montana. The floods were the result of unusually heavy rainfall on well saturated soils. Most of the damage was to northern Cheyenne and Crow Indian Reservations of southern Montana. People from the towns of Crow Agency and Lodge Grass as well as the Sabre Indian School at Ashland were evacuated as the waters rose and isolated the areas. Many bridges and approaches to the bridges were washed out in Yellowstone, Rosebud, Big Horn, and Powder River Counties. Major damage was to agricultural lands and roads, with total damage estimated at \$50 million, and 2 fatalities.

Severe flooding occurred in southeastern Montana along the Yellowstone and Cheyenne Rivers and their tributaries during the 17th-23d. The floods were the result of unusually heavy rainfall and well saturated soils, with much damage.

### JUNE

Thunderstorms on 3 consecutive days caused very heavy rains and flash flooding to sections of southwest and south central lower Michigan. On the 25th about 4 inches of rain fell over Cass and Berrien Counties. On the 26th heavy thunderstorms passed over a 50-70 mile swath from Allegan County southeastward across Kalamazoo, Calhoun, Branch, Hilledale, and Lenawee Counties. Rainfall amounts ranged from 5 to 8.62 inches. Serious flash flooding occurred in Allegan County with less serious flooding on a localized scale in the other counties. On the 27th localized flooding was reported in Berrien, Cass, St. Joseph, and Hilledale Counties, but on a minor scale.

A state of local emergency was declared over Allegan County by local officials. The town of Hopkins had approximately 6 inches of water over the whole town. Damage estimates were not available.

On the evening of the 19th, water poured off the White



## LATE REPORTS

# GENERAL SUMMARY OF NATIONAL FLOOD EVENTS

Mountains in New Hampshire faster than the Ammonoosuc, the Wild Ammonoosuc Rivers, and nearby streams could handle. This produced some of the few true flash floods that are experienced in New Hampshire. Most of the damage occurred in northwest Grafton County, along the Route #302 corridor from Woodsville to Littleton with high streams cutting roads by the dozen. In Bath 30 families were stranded where 3.25 inches of rain occurred in one hour. Damage estimates of \$900,000 were reported.

Major damage occurred near mid-month in southwestern Wisconsin. In the Pecatonica River Basin area, which was the hardest hit, the river crested about 3 feet over flood stage at most points. Widespread flooding was reported elsewhere, but at a lesser scale. Total estimated damage approached \$1 million.

On the 25th, the Minneapolis/St. Paul metropolitan area incurred significant urban flooding. This was the result of a 1 to 3-hour storm which dropped 4 inches of rainfall in southern Minneapolis. The soil was so saturated with moisture that basement collapses were numerous. The Hasting area reported 60 homes with this or related damages. Losses were near \$5 million.

Two heavy rain events occurred in Indiana. The first storm occurred on the 18th, with unofficial reports of 4 inches of rain reported in Osgood and about 5 miles south of Liberty. Street Flooding was reported in Jasper, where 3.5 inches of rain fell. The second storm hit on the 25th. Total damage from flash flooding was in the 3-4 million dollar range. Unofficial rainfall in excess of 6 inches were quite common from Lafayette to Shelbyville.

In Texas very heavy rains fell on the 2d in the southern portion of Big Bend National Park, causing a sharp rise on the Rio Grande. One fatality occurred due to flash flooding within the park. A man was asleep in a dry creek bed; he became tangled in his sleeping bag and was swept away. The Rio Grande crested at 14 feet; one foot above the flood stage at Boquillas, TX.

### JULY

This was the most severe month for flooding since 1951. In fact, several of the 1951 records, as well as a few of 1965, crest stages were surpassed by a significant margin. Severe flooding occurred in parts of southeastern Minnesota as a result of rapid runoff from intense thunderstorm rainfall. The stage at the official gaging station in Rochester, MN., rose from a little over 4 feet early on the evening of the 5th, to a record stage of 23.36 feet at noon the following day. The flood stage is 12 feet. This surpassed the old record by 4.24 feet (March 1, 1965). Five people died that night but only one as a direct cause from the flood waters. The other four died when a power failure at a nursing home caused an elevator to fall to the flooded basement. Damage is estimated near \$60 million. The storm hit hardest in Goodhue, Wabash, Winona and Houston Counties in Minne-

sota. Red Wing reported 7.78 inches of rain. Mud slides and bridge or road washouts were numerous. Three deaths were attributed to the storm in the above counties. A driver in a pickup truck drove into a flooded area near a bridge and was swept away just 2.5 miles east of White Rock in Goodhue County. An elderly man in White Rock was swept away while trying to retrieve personal belongings. In Lewiston, Winona County, a man was electrocuted in his flooded basement. The staff at the White Water State Park near Elba, MN, on the Whitewater River evacuated 600 campers. Their flash flood alarm system functioned normally and the town of Elba was evacuated also. Estimated damages reported for the four counties were over the \$10 million mark.

By the end of June, the soil had been "set up" for a potential disaster. Precipitation departures for the two previous months period ran from 2 inches to as high as 6 inch range for the Kickapoo River Basin and adjacent areas. In Ontario, WI, the extreme headwater area, rainfall was about 8 inches above the normal for the same period. Southwestern Wisconsin reported heavy losses, mostly in the Kickapoo River Valley. Record stages were set at each gaging station. By the morning of the 2d, the 72-hour rainfall total ranged from nearly 7.75 inches at the head to 2.75 inches near Steuben, WI, at the mouth of the Kickapoo. No towns along the river were spared damage. Flood waters came fast and even broke through the dike at Soldiers Grove, WI.

An elderly woman in La Crosse, WI, was killed when she went to her basement to check for damage; the concrete walls collapsed on her, and a young man was swept away in the Mississippi River the following day due to swift current from tributary discharge.

Moderate to severe flooding occurred along several streams in eastern Iowa. Rapid runoff from the intense rainfall on the 2d resulted in severe flooding along Waterloo Creek in and near Dorchester, in the upper Iowa River Basin.

A brief downpour over metropolitan St. Louis, MO, caused flash flooding along River Des Peres in University City. Property damage from this was estimated to be near \$2 million.

The finale to July's flooding came on the 19th to Ceustin, MN, at a time when people were cleaning up from the previous flood of the 9th.

Intense thunderstorms moved southeast along the east side of the Cedar River Basin in Minnesota. Around 8 inches of rain was recorded near Brownsdale, northeast of Austin. The record surge of water that hit Austin came mostly from creeks flowing in from the east. The headwaters of the Cedar did not contribute much to the crest. The peak stage at the Sewage Plant was 21.9.

The U. S. Geological Survey showed a crest of 20.35 feet, a new record for the city of Austin.

In Alabama severe flooding occurred on the 26th in and near Fairhope, a few miles southeast of Mobile on the eastern shore of Mobile Bay. The National Weather



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# GENERAL SUMMARY OF NATIONAL FLOOD EVENTS

Service Cooperative Observer reported 15.46 inches of rain at Fairhope during the first 11 hours of that date, exceeding the record rainfall of 13.36 inches in 24-hours for the period 1891 to date at that site, and also exceeding the 100-year 12-hour rainfall of 12 inches for the Mobile area. One death was attributed to the massive torrential downpour, due to a road washout. Estimated damages were \$2 million, mostly to roads and agriculture.

Severe flooding occurred in the Kickapoo River Basin in west central and southwestern Wisconsin early in July. Sixteen counties were reported to have been declared eligible for Federal Disaster Assistance. Total losses were estimated by local officials to be \$53 million.

### AUGUST

The remnants of Tropical Storm Amelia brought great flooding and rainfall from July 31 to August 4. Ironically, most parts of central Texas were seeking relief from a prolonged drought period. Rainfall recorded on the 3d and 4th exceeded the normal annual precipitation for a large area of western Texas. This probably was the greatest storm in recorded history in terms of widespread heavy rainfall and runoff over Texas.

The storm extended from the south coastal plains, northwest to the hill country, and then northward into north central Texas. Record flooding occurred in and along the Guadalupe, Brazos and Medina Rivers of Texas. Widespread flooding was reported along the Sabinal, Pedernales, Llano, and San Saba Rivers. Moderate flooding occurred along the Frio, Neuces, Atascosa, San Antonio Rivers and Hondo and Seco Creeks. Twenty-seven people died in southern Texas and 6 more in the north central portion for a total of 33 deaths.

The heaviest point rainfall recorded was northwest of Albany, TX, in Shackelford County, where 32.5 inches fell. Damages in Shackelford County were estimated at \$20 million. The city of Albany reported 6 persons drowned and over \$3 million in damages. In Throckmorton and Haskell Counties nearly 15 inches of rain fell during the same period. Throckmorton County reported an estimated \$12 million in damages and Haskell \$30 million. Record rises occurred on the Brazos River in Haskell and Shackelford Counties.

In the Northeast, August began and ended wet with a 2-week dry spell inbetween. The dry spell broke on the morning of the 28th when heavy thunderstorms dumped 3-5 inches of rain over Chester and Delaware Counties in Pennsylvania and Camden and Burlington Counties in New Jersey. Severe highway flooding was reported in Camden County with many major highways closed during the morning rush hour due to standing water and mud slides. Several roads remained closed for 18 hours.

The evening of the 31st saw a flash flood hit portions of Burlington and Ocean Counties in New Jersey, along

Crosswicks Creek. Hardest hit was the town of New Egypt, where damage was estimated at \$2.5 million. No deaths or injuries were reported. From 1 p.m. August 31, to 1 a.m. September 1, McGuire Air Force Base recorded 6.89 inches of rain and estimates made from the Fort Dix Forest Fire Tower of 9 to 9.5 inches during the same period. Evacuation of 50 people was necessary. Electric, gas, and phone services were disrupted; the municipal water supply was contaminated and unusable for several days.

A flash flood which roared out of the Oregon Mountains in New Mexico claimed 5 lives on the White Sand Missile Range and destroyed millions of dollars worth of technical equipment. The five victims were swept to their deaths when a 12-foot wall of water caught their vehicles on a bridge across a normally dry arroyo. An unofficial 10 inches of rain was measured during a 4-hour period on the 19th at a nearby ranch.

A large flood occurred on the Rio Grande from Presidio, TX, downstream to Lake Amistad on the 5th-8th. The flood was caused by rains estimated in excess of 12 inches, which fell on the night of the 4th on the Rio Conchos watershed in northern Mexico. Damage was estimated at \$100,000 in the Presidio area.

A flash flood killed 2 persons on Caesars Creek near Friendship, IN on August 18.

During the afternoon and night of the 26th, thunderstorms dumped up to 11 inches of rain northeast of Watertown, SD. Damages were estimated at greater than \$250,000.

The month of August was both costly in terms of lost dollars and lives.

### SEPTEMBER

Heavy rains developed in the Benton area of Arkansas in the early morning of the 13th. At 7:00 AM measurements by the Benton observer was 2.7 inches; by noon an additional 9.75 inches was measured, making a total of 12.45 inches at Benton in 8 or 9 hours. At an industrial plant just east of Benton area, an unofficial measurement of 15.37 inches was reported during the same period.

The heavy rains caused severe flash flooding in Pulaski and Saline Counties. The flooding of Rock and Fourche Creeks in Little Rock and McNeil and Salt Creeks in Benton took a total of 10 lives. Most of the lives lost were children. One characteristic feature of flash flooding during 1978 was that the young and old accounted for a large percentage of the lives lost. The Saline River reached a crest of 22.1 feet; flood stage is 18 feet at Benton. Damage was estimated at \$25 million.

Considerable urban flooding was reported in West Monroe, LA, where maximum rainfall estimated at about 12.5 inches fell during late on the 14th into early on the 15th. Estimated damages occurred of \$18-20 million to some 2-4,000 homes; \$2-3 million to public

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facilities and \$3-5 million in agricultural for a total of \$25 million. No fatalities or injuries were reported.

Several significant floods occurred in western Texas. All of these were in the Rio Grande Drainage Basin. During the 24th, heavy rains of the Terlingua Creek watershed and Big Bend National Park caused a sharp rise on the Rio Grande. A crest of 11 feet was reported at Boquillas, TX. A flash flood occurred on the 26th at Pecos, TX. Cottonwood Draw, which flows through the northern part of Pecos, caused major damage to an estimated 70 homes. Rainfall of 4 to 5 inches were recorded. During the same period heavy rains south of Ojinaga in Mexico caused water to be released from a diversion dam about 20 miles south of Ojinaga, into the Rio Conchos River. In addition, rains of 3 to 5 inches fell on the Cibolo Creek watershed in southwestern Texas; the result was a crest of 25.6 feet in the Presidio area; flood stage is 14.5. A crest of 6-7 feet above flood stage was recorded at Boquilla and Lajitas, TX. The final flood occurred on the 28th-30th. Extremely heavy rains on the Rio Conchos Basin in Mexico, just upstream from Luis Lean Reservoir, caused an unprecedented flow into the reservoir. This was released into the Rio Conchos which caused the second largest flood in history on the Rio Grande at Presidio, (largest was recorded in 1904). Losses were mainly agricultural.

#### OCTOBER

Flooding continued into October on the Rio Grande from Presidio to the mouth of the Pecos. Damage was estimated at \$1.75 million, with most of the damage to farm lands and the levee system at Presidio.

Intermittent rains, occasionally heavy at times during a five day period, drenched Puerto Rico during the 22d-27th. Although no major rivers or streams went into flood stage, there was considerable flooding of small creeks with heavy runoff and flooding of low-lying areas. The highest 24-hour total was reported at Humacao with 8.32 inches. The heaviest rain for the 5-day period was concentrated along the southern and eastern section of Puerto Rico, with totals ranging from 10 to 18 inches. All three flash flood alarms were activated. Although no actual river flooding occurred, the alarm warned of significant rains in the area. Damages were mainly to roads and agriculture with some small businesses and homes affected in low-lying areas. Flood losses were estimated at around \$5 million in the Ponce area and 2 lives lost.

#### NOVEMBER

Heavy rains of up to 4 inches caused flash flooding and mainstem flooding along rivers in New Mexico and Arizona.

Major flooding occurred during the 24th-26th on the Blue, San Francisco and Gila Rivers of Arizona and

southwest of New Mexico. Most of the damage occurred in Arizona where an estimated \$8 million in damage was reported in Graham and Greenlee Counties.

One fatality was reported near Reserve, NM. The San Francisco and Gila Rivers reached the high water mark of the 1972 flood event in southwest New Mexico.

Unofficial rainfall reports of 4.5 to 12 inches in the Kirbyville area of southeastern Texas during the 15th caused local flash flood problems. Trout Creek, which runs through Kirbyville, flooded and some 200 people had to evacuate their homes. A total of 19 homes, 13 mobile homes, and 11 small business buildings were flooded. Only 1 fatality occurred, a 57 year old man was trying to save property along the creek; drove his tractor into the water and drowned. Dollar damage was unavailable.

Torrential downpours fell over the Rio Grande watershed in both the United States and Mexico during the night of the 4th and into early morning of the 5th. Rainfall on the mainstem was estimated at 20 to 25 inches. The resultant flood on the Rio Grande broke all the previous records at the Foster Ranch Gauging Station, located upstream from Lake Amistad. The river crested at a stage of 61.5 feet at around 5 AM CST on the 5th. At 10 PM CST on November 4, the stage at this same location was only 7.5 feet. The maximum flow during the flood was 200,000 cfs. Losses as a result of the flood were estimated at approximately \$100,000, mainly to several fishing camps and vehicles.

During the early morning of the 5th, a flash flood struck Sanderson, TX, just northwest of Dryden. Sanderson Creek crested at a stage of 9.0 feet, or just 1.5 feet above flood stage. However, during the flood, a railroad bridge spanning the creek collected considerable debris causing a damming problem. Water backed around through the town, causing an estimated \$1.5 million in damage.

#### DECEMBER

Flooding occurred in many parts of Kentucky as a result of rapid runoff from rainfall amounts of 3 to 8 inches during the 8th through the 10th. The most significant flooding was in the Kentucky River Basin in the north central portion of the state. Severe damage was reported in Frankfort and other cities situated on the flood plains. Record flooding occurred at Frankfort on the Kentucky River. A crest of 48.4 feet was recorded on the 10th, exceeding the previous record of 47.5 feet set in January 1937. A record crest was also recorded at Clay City on the Red River. According to the Geological Survey's report, peak discharges at several stream-gaging stations in the state were greater than those of a 100-year flood. Near Bowling Green 2 persons were drowned in an automobile, when the driver failed to see a "road washed out" sign. Estimated damages are not available, however losses exceeded \$100 million.

Flooding occurred in portions of western West Virginia,

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as a result of heavy rainfall on the 8th through the 10th. Parts of West Virginia reported record precipitation with monthly totals 2 to 3 times the normal occurring at many locations. Monthly totals ranged from a minimum of 2.35 inches at Speedwell, VA, to a maximum of 11.74 inches at Dunlow, WV.

The most significant flooding occurred in the Twelvepole Creek Basin. The greatest flood since records began was recorded near Dunlow, WV, on the East Fork Twelvepole Creek. The flood was greater than that of a 100-year flood, according to Geological Survey reports.

Approximately 1,600 people left their homes. Damage to roads in a 5-county area (Lincoln, Cabell, Wayne, Jackson and Mingo), was estimated at \$2.2 million. There were additional minor damages in the neighboring counties and some evacuations required. Two small dams were threatened during this event.

Severe flooding also occurred in portions of western New Mexico as a result of high elevation rainfall of up to 8 inches during a 2-day period. Also the wet snow pack of 1 to 2 feet caused extremely high runoff.

Many of the reporting stations failed in southwestern New Mexico. Flood losses exceeded \$3 million, but only 1 fatality was reported.

The Arizona storm of the 10th-20th resulted in the most extensive flooding ever to hit the state. Except for the extreme northern and western parts of the state, rainfall amounts generally were in excess of 2 inches with higher elevations receiving 4-6 inches or more. Complicating the situation was the wet snowpack of 1 to 2 feet.

During the storm, almost every major river in Arizona overflowed its banks. Considerable flood damage occurred along the Gila River and its tributaries above Safford, and the Little Colorado and its tributaries above Winslow. Also, the Verde, Agua Fria and Salt Rivers caused millions of dollars in flood damages in and near Phoenix. Flood losses were estimated to be \$55.2 million, with 10 counties declared disaster areas.

An estimated 8,000 people were left homeless, and 10 persons drowned. Six died when the bridge on I-17 near Black Canyon City was washed out in floodwaters of the Agua Fria River.



Chart 1. Departure from Normal of Annual Temperature ( $^{\circ}\text{F}$ ) at Surface, 1979.

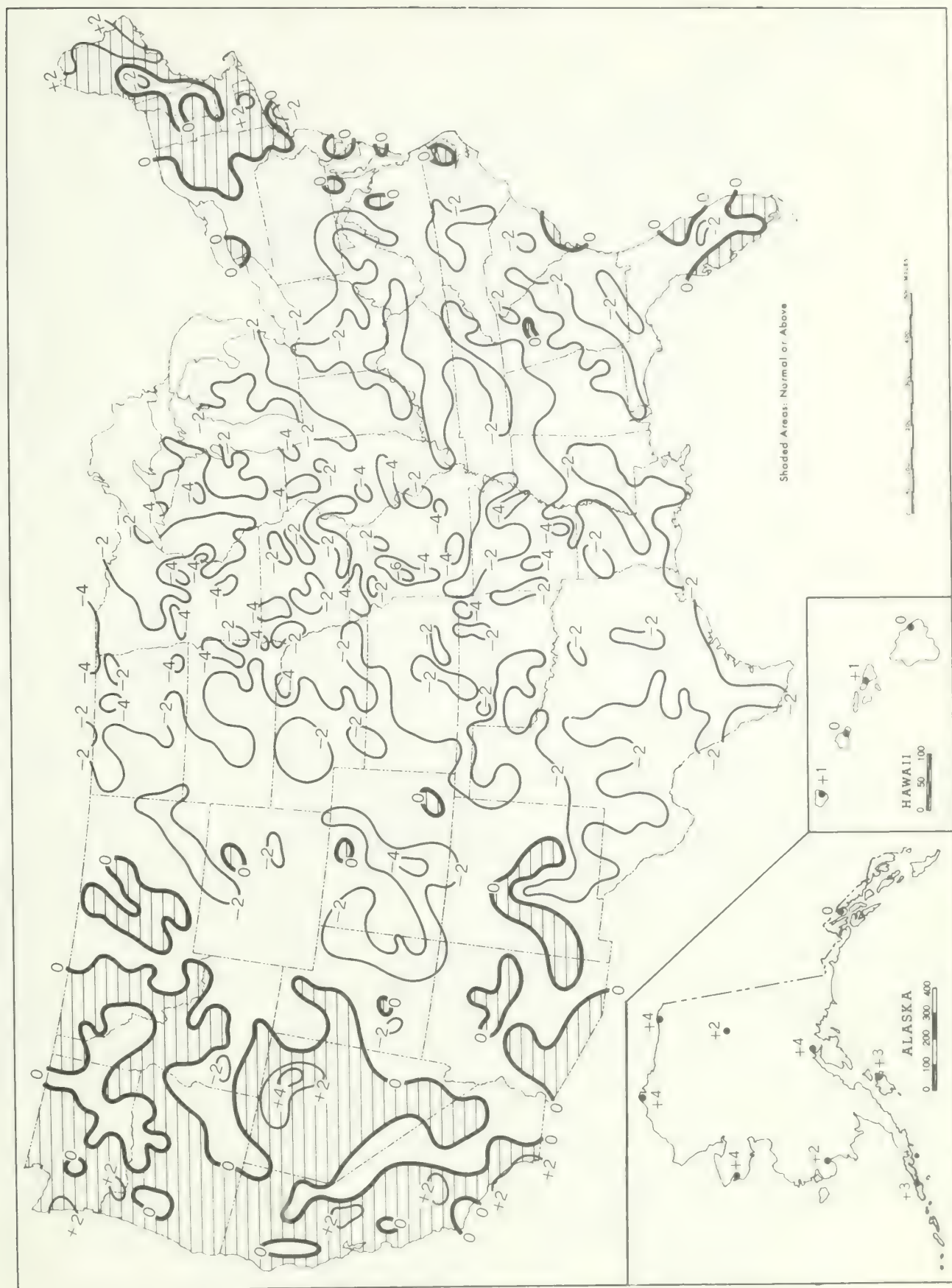


Chart II. Total Annual Precipitation (inches), 1979.

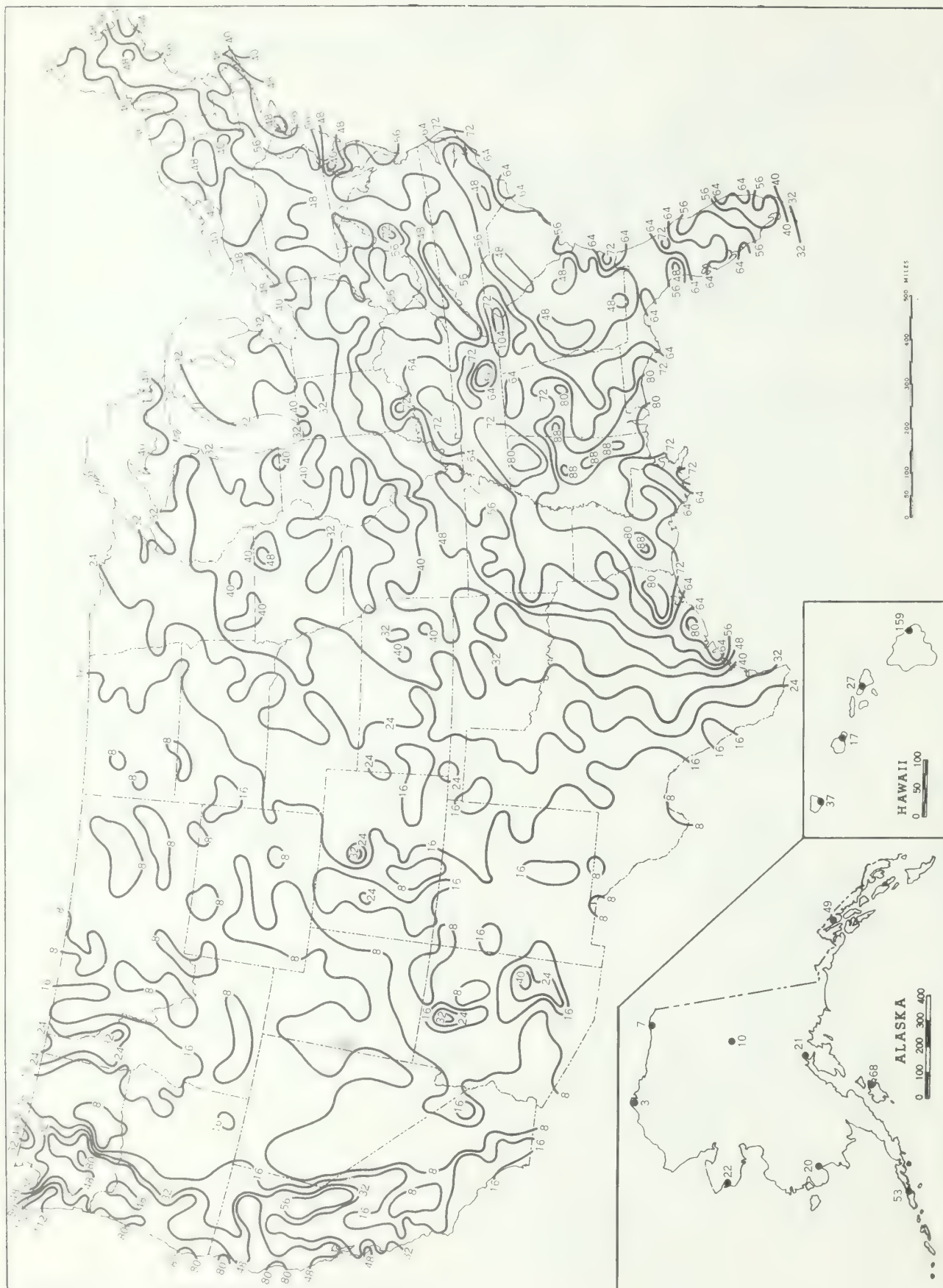
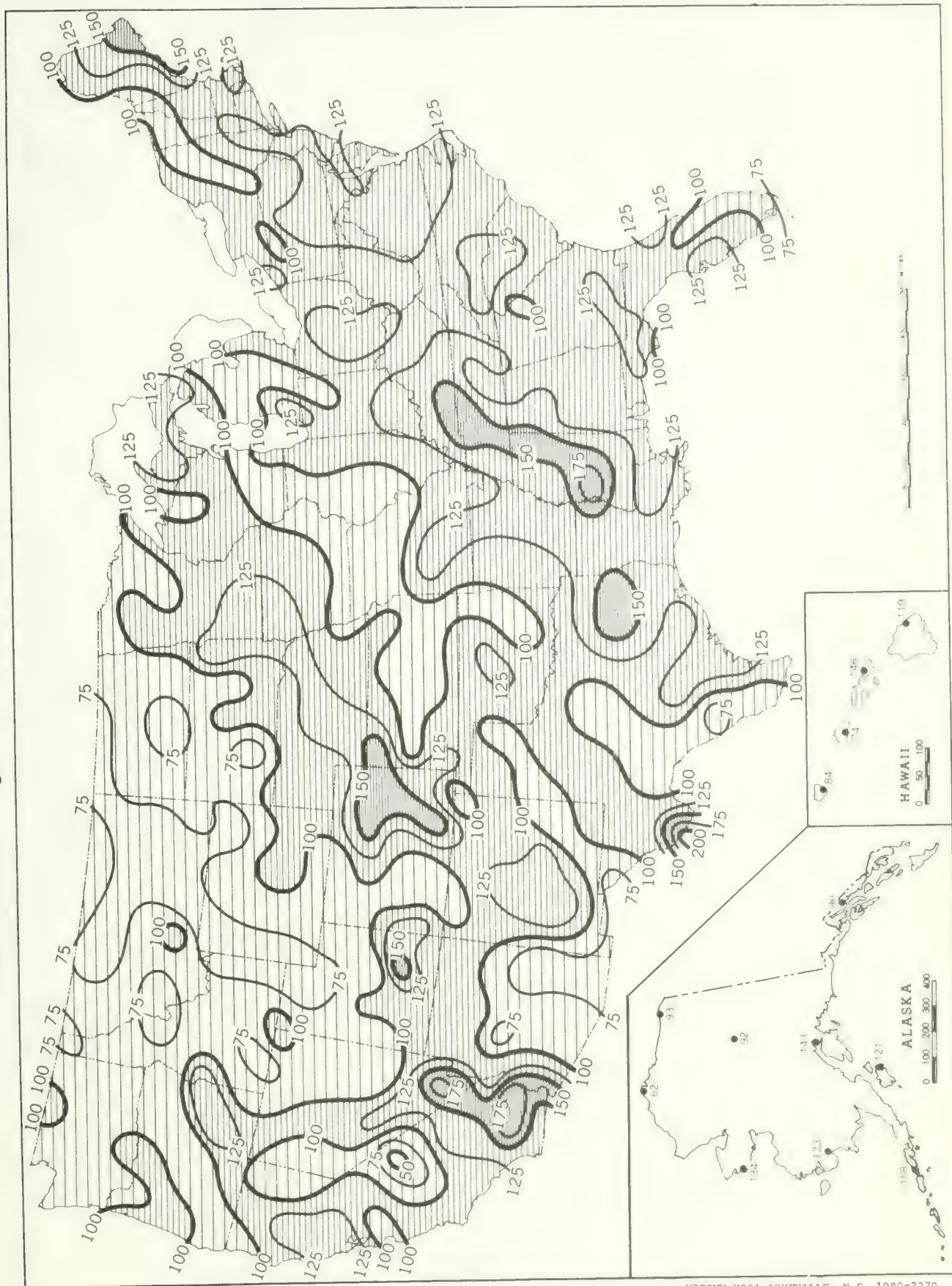




Chart III. Percentage of Normal Annual Precipitation, 1979.









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